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# MILITARY MEDICINE

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## MILITARY MEDICINE

## ORIGINAL ARTICLES

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## Some Aspects of the Lung Cancer Problem\*

By

ALEXANDER G. GILLIAM, M.D.\*\*

WHEN asked to present some aspects of the lung cancer problem for you I was hesitant to do so since I have no new findings to report. I finally accepted the assignment, however, because of the feeling that a useful purpose might be served in bringing together some of the material which appears pertinent, with a somewhat different emphasis from that usually encountered in reviews of this subject. I have therefore attempted to outline some aspects of evidence bearing first, on increased liability to the disease, and second, on the cigarette controversy. In doing so I am fully aware of the dangers inherent in selecting limited aspects of a disease problem and examining them outside of the framework of the disease as a whole:—all the factors known which influence its experimental production, its clinical progression and its distribution in human populations. If for no other reason, however, the element of time allows me no alternative.

## INCREASE IN LIABILITY TO THE DISEASE

Prior to the turn of the century primary carcinoma of the lung was rarely recorded

among large series of autopsies. Passler, in 1896 was able to collect only 96 cases from the world literature.<sup>1</sup> Adler, in his monograph on malignant growths of the lungs and bronchi, collected only 374 cases up to 1912. Even then, however, he commented that the failure of recognition of cancer of the lung has for a long time perpetrated the dogma of its rarity.<sup>2</sup> It is not possible now to determine how much Virchow's dictum influenced pathologists during this period, but considering his eminence his views must have exerted considerable influence upon their practices. Virchow contended that organs which are frequently the seat of metastatic involvement are rarely the site of a primary growth. This erroneous statement was repeated by Lubarsch in 1895, who cited the lungs as a case in point.<sup>1</sup> In any event, prior to the turn of the century these tumors either were rare or were rarely diagnosed clinically or at autopsy.

Since about 1900 the disease has been more commonly diagnosed. Its frequency, expressed as a percentage of all cancers found at autopsy, has increased gradually or in some instances more rapidly. According to Hueper's analysis of such data this increase has not been uniform in time or in degree in different localities.<sup>3, 4</sup> The disease is now recognized, however, on all continents, in practically every country, and in all numerically important ethnic groups. Steiner has recently tabulated cancer of the lung as

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encountered in autopsy series in different parts of the world and notes considerable variation with time and in geographic distribution in its frequency relative to all other cancers diagnosed.<sup>5</sup> Considerable caution must be exercised, however, in interpreting relative frequencies from autopsy or clinical data as measures of true geographic or ethnic variation, or as measures of trends in liability or risk to disease.<sup>6</sup>

The International Lists of Causes of Death did not separately list cancer of the lung and pleura, or even cancer of the respiratory system as a whole, until the Fourth Revision,—first used in 1930. In this country, however, data for cancer of the lung and pleura are available earlier, in 1914, because of special tabulations made by our Bureau of the Census. Prior to 1930 the term *bronchogenic carcinoma* was lumped with 90 other cancers of various sites. Between 1930 and 1938, when this diagnosis appeared on a death certificate, it was tabulated with cancer and other malignant tumors of *other respiratory organs* (47C)—that is, with tumors other than those designated as *larynx* (47A) or as *lungs and pleura* (47B). It was not until the Fifth Revision came into use in 1939 that deaths which physicians charged to *bronchogenic carcinoma* were separately identified in official statistics.

It is clear, however, that those who developed the International List were only following current medical practice in setting it up. Detailed examination of the tabulations make it evident that the term *bronchogenic carcinoma*, as a designation for death due to a primary intrathoracic tumor, did not assume any popularity at all among the medical profession in this country until the late 1930's, and did not comprise as much as one-third of the whole rubric—"cancer of the lung"—until the latter part of the decade 1939-1948.<sup>7</sup>

These changes in medical and in tabulation practices in an expanding Death Registration Area therefore make it impossible to determine the *exact* trend in this country of

mortality attributed on death certificates to what is generally included as cancer of the lung. Nevertheless the data are sufficient for useful evaluation and undoubtedly reflect a fair indication of the broad features of true trends as measured by *death certificate data*. Analyses of these data have been made by such authors as Dorn, Horn, Dunn and Milmore.<sup>7-10</sup> They show that in 1914 recorded mortality for white males exceeded that for white females by only about 17%. By 1949-50, however, the recorded male rate had increased about 25 times over that of 1914 and that for white females only about 7 times; the male rate then being not 17% but 4.4 times greater than the female. There were proportionate increases recorded for the non-white.<sup>8</sup> Similar increases have been recorded in other countries where reliable vital statistics are available.<sup>11-13</sup>

The serious question at issue is how much of the recorded increase represents a real increase in liability to the disease and how much reflects development of improved diagnostic methods, and their more widespread availability and use. The Kennaways,<sup>14</sup> Doll,<sup>11</sup> Dorn,<sup>8</sup> Horn,<sup>9</sup> and Dunn,<sup>10</sup> among others, present cogent reasons for believing that a substantial part of the increase reflected by mortality statistics is real. Among these reasons are the following: (1) The recorded relative increase is greater in males than in females. It is difficult to believe that physicians have become increasingly able to diagnose lung cancer more readily in one sex than in another.

(2) The rate of increase has been different in different age groups, which is difficult to understand on the basis of improvement in diagnosis.

(3) It is unreasonable to believe that in the last 5 years there has been improvement in diagnosis commensurate with a continued recorded increase of about 10% a year during this recent period.

Dorn noted that between 1914 and 1950 age adjusted mortality recorded for white males increased 25 times. He points out that

if all of this increase is due solely to better diagnosis, then physicians practicing in 1914 were able to correctly diagnose only 4% of the cases existing at that time.<sup>8</sup> That physicians correctly diagnosed only a small proportion of primary lung cancer existing in 1914 would appear preposterous at first glance but when looked at more closely may not be unreasonable at all. The period during which there has been a phenomenal and frightening increase in recorded mortality from lung cancer was also characterized by a substantial decline in mortality attributed to respiratory tuberculosis. There is an abundant literature attesting to the frequent clinical confusion of lung cancer with tuberculosis, and there are numerous reports of coexistence of the two diseases. In Fried's series,<sup>1</sup> for example, tuberculosis was also present in 10% of his lung cancer cases, and in the Sea View<sup>15</sup> and Triboro Hospital<sup>16</sup> series lung cancer was also demonstrated

at autopsy in 1.5% of tuberculosis cases. These series reflect coexistence of the two diseases, but do not provide any estimate whatsoever of the frequency with which the average case of lung cancer may have been mistakenly diagnosed as tuberculosis. If we were to assume that in 1914, and still in 1950, as few as 2% of deaths recorded on death certificates as due to respiratory tuberculosis were incorrectly diagnosed, and were in fact due to cancer of the lung, then the crude rates for the latter in white males would have increased not 35 times but only about 10 times (Table I). Assuming a 10% error in tuberculosis diagnosis there would only be a 3-fold crude increase in lung cancer mortality in white males and very little at all among white females. The trend estimates made in the table, furthermore, assume a constant error in diagnosis between 1914 and 1950. If the ratio of error were substantially greater in the earlier period than

TABLE I

MORTALITY FROM CANCER OF THE LUNG IN THE UNITED STATES PER 100,000 POPULATION AS *Recorded* AND AS *Computed* ON THE ASSUMPTION THAT VARIOUS PERCENTAGES OF DEATHS ATTRIBUTED TO RESPIRATORY TUBERCULOSIS (IN PERSONS OF 35 YEARS AND OVER) WERE ACTUALLY DUE TO LUNG CANCER

Race and Sex	Year	Recorded Lung Cancer Death Rates		Crude Death Rates Computed If Indicated Percentages of Respiratory Tbc Deaths Were Actually Lung Cancer			
		Adjusted*	Crude	1%	2%	5%	10%
White Males	1914	0.77	0.6	1.4	2.1	4.3	8.0
	1950	21.65	20.8	21.0	21.2	21.9	22.9
	Ratio: 1950/1914	28.1	34.7	15.0	10.1	5.1	2.9
White Females	1914	0.67	0.5	0.9	1.3	2.6	4.6
	1950	5.14	4.7	4.7	4.8	5.0	5.3
	Ratio: 1950/1914	7.7	9.4	5.1	3.6	2.0	1.2

\* Recorded adjusted rates are from Milmore<sup>7</sup> and refer to respiratory cancer other than cancer of the larynx.

The crude rates do not take into account the "aging" of the population between 1914 and 1950, which of itself would reduce to some extent the ratios of increase noted. On the other hand, the crude rates "computed" do not fully account for possible effects of the different age selection of tuberculosis and cancer of the lung. These computations are preliminary and for *illustrative purposes* only.

in the latter, then the true ratio of increase in lung cancer would be somewhat less than the figures indicated in the table.

This is of course speculation, but it clearly shows that a *large* numerical error in diagnosis of cancer of the lung could theoretically be accounted for by a relatively *small* numerical error in diagnosis of the predominant pulmonary disease of the time. This fact emphasizes the difficulties encountered in accurately estimating trends of a disease which even today requires special skills for its correct identification. Such speculation will serve a useful purpose if it encourages the review of clinical and autopsy series in an effort to arrive at some numerical evaluation of death certificate diagnoses at different periods of time. What proportion of clinically diagnosed cases of respiratory tuberculosis were actually lung cancer and what proportion of autopsied tuberculous patients also harbored this disease,—due regard being given to age, race, and sex of the deceased?

In spite of some dissenters, however, there is a growing belief that a substantial part of the recorded increase in liability to cancer of the lung is real and is not due to such factors as improvements in diagnosis. In the words of the Symposium on the Endemiology of Cancer of the Lung held in Louvain in July 1952—"A significant part of this increase is absolute and represents a real increase in the number of people suffering from primary cancer of the lung."<sup>17</sup> The present status is described by such authors as Clemmesen<sup>18</sup> and Dorn<sup>8</sup> as "pandemic," a word which has generally been reserved in epidemiological literature to describe such world-wide scourges as the 1918-19 influenza pandemic or the Black Death of the Middle Ages. Clemmesen,<sup>12</sup> in projecting "cohort"<sup>19</sup> mortality rates into the future, estimates that by 1990 there will be substantially more lung cancer deaths in Danish males than there are deaths now from cancer of all sites. Clemmesen, however, based his projections on cohort rates plotted on an arithmetic scale, which fails

to account for changes in rate of recorded increase. I have previously stated<sup>20</sup> that the rate of increase in recorded mortality was greatest in this country between 1914 and 1930 and that it has been declining since. More adequate analysis of the same data by Milmore<sup>7</sup> has confirmed this for females. For males, however, he shows that the rate of increase declined after 1930 as I stated, but between 1945 and 1950 again averaged about 10% per year,—about the same rate of increase noted between 1914 and 1930.

Cutler and Loveland<sup>21</sup> in a more conservative projection of cohort rates than employed by Clemmesen, estimate that 43 out of 1,000 United States white males now between 30 and 50 years old will develop lung cancer by age 80. When probabilities are computed, not by projection of recent trends into the future but on the basis of lung cancer incidence currently (1947-48) observed in 10 Metropolitan Areas of the United States, Cutler estimates that about 25 of 1,000 white males will develop the disease between birth and death. The differences between the two estimates, 25 and 43 per 1,000, essentially represents the difference between estimates based on recently observed rates and those based on conservative projections of recorded trends.

Regardless of the past, and regardless of speculation about the future, the disease occurs today with sufficient frequency to be a matter of concern. During 1951 nearly 20,000 deaths in the United States were attributed to it. These represent 1.3% of all deaths during that year and comprise 9.2% of the total mortality charged to cancer. Among males approximately 2% of all deaths and 15% of all cancer deaths were recorded as due to this disease. The crude death rate for lung cancer recorded in 1951 was 12.9 per 100,000 for all persons and nearly double that (22.3) for white males. Steiner, who has devoted considerable attention to autopsy data and to the lung cancer problem in general, is of the opinion that recorded mortality at present accounts for

only a little over half the cases which actually exist.<sup>5</sup> In spite of the fact, therefore, that the magnitude of the real increase in this and other countries may *always* remain a matter of opinion, cancer of the lung is today of sufficiently frequent occurrence to be regarded as a community problem.

#### THE TOBACCO CONTROVERSY

Since direct evidence of a relationship between smoking and cancer of the lung was first secured in 1939 by Müller in Germany<sup>22</sup> there has been abundant further evidence of a similar nature, chiefly from the United States and England.\* In principle the studies providing this evidence have ascertained the smoking histories of patients with the disease, and compared the percentages of smokers of varying degree and duration, with the percentages found among other persons selected as controls. An example is given in Table II of the findings in one large investigation, that of Sadowsky, Gilliam and Cornfield,<sup>25</sup> where the percentage results were converted into estimates of

prevalence rates of cancer in smokers and non-smokers. In this particular series of cases excess risk among cigarette smokers was considered demonstrated for cancer of the larynx and for cancer of the lung, and excess risk for non-smokers to cancer of the skin. There was a tendency for risk of esophageal cancer to be excessive in cigarette smokers but this was regarded only as suggestive. There was also a strong association between pipe smoking and cancer of the lip, and suggested association between cigar and pipe smoking and cancer of the tongue and cancer of other parts of the oral cavity. No association was evident between smoking and cancer of the pharynx.

For a number of reasons it is unsafe to generalize on the evidence of one case history investigation such as that cited. Taken together with results of other similar studies, which though differing in degree,<sup>20, 26, 27</sup> generally point in the same direction, they may be regarded as demonstrating a greater liability to cancer of the lung and to cancer of the larynx in cigarette smokers, and to cancer of the lip in pipe smokers. Without duplication in other studies, the other associations suggested or demonstrated in this particular series, and shown in Table II, should be looked upon in the same light as clinical impression.

TABLE II  
ESTIMATED AGE ADJUSTED PREVALENCE RATES FOR CANCER OF SEVERAL  
SITES IN SMOKERS AND NON-SMOKERS\*

Smoking History	Lip	Tongue	Oral	CANCER SITE		Larynx	Lung	Skin
				Pharynx	Eso- phagus			
Single type								
Cigarettes	8.2	5.0	7.5	6.8	15.7	9.2	18.3	5.2
Cigars	9.0	13.4	24.6	2.3	17.6	8.0	12.2	6.6
Pipes	25.0	12.1	20.6	2.5	6.6	4.5	4.8	11.4
Mixed	16.4	10.4	15.1	1.1	7.5	10.9	18.3	5.7
All Smokers	14.4	8.5	13.4	2.6	10.3	9.6	14.9	6.4
Non-Smokers	8.3	2.3	6.1	1.0	2.5	2.0	4.1	10.3

\* Data from Sadowsky, Gilliam and Cornfield.<sup>25</sup> The original paper must be consulted for reasons, additional to the rates given above, why associations are considered "definite" (—) or "suggested" (---).

TABLE III  
ESTIMATED CASES OF LUNG CANCER EXPECTED TO  
DEVELOP PER 1,000 WHITE MALES  
40 YEARS OF AGE\*

Smoking Class	By Age 80	By Age 70	By Age 60
Non-smokers	6	4	2
Half pack or less	25	16	6
Half to one pack	49	30	11
More than one pack	80	53	23
All persons	43	27	11

\* Summary table from Cutler and Loveland.<sup>21</sup>

Cutler and Loveland<sup>21</sup> have taken the data from three published case history studies and converted the percentages of smokers and non-smokers in cases and controls into incidence rates of lung cancer in smokers and non-smokers. They then computed future probabilities of development of the disease on the basis of a conservative projection of cohort mortality rates. Their results, and it must be emphasized that they are estimates, are given in Table III. When presented in this fashion the data more clearly illustrate the excess risk in smokers than when findings are expressed in terms of percentages of smokers and non-smokers. It should be noted that in addition to showing an increased risk in smokers, the data also indicate that risk increases with quantities smoked.

The case history method of eliciting an association such as this is an indirect method which is very sensitive to sampling factors which determine representativeness of study persons selected for interview. The absolute security of conclusions which may justifiably be drawn from case history studies, therefore, may be open to question in spite of repetition of findings. The population\*

\* What is here called the case history method<sup>28</sup> is generally referred to as "retrospective," and the population method is often called "prospective."<sup>29, 30</sup> In my opinion the terms used here are more appropriate since both from the standpoint of mechanics of study, and security of evidence, the main

or direct method of measuring risk, on the other hand, is not open to the same objections, and in addition provides more reliable estimates of risk. For this reason at least three population studies have been undertaken, and preliminary results from two of them are now available.<sup>29-30</sup> Though the preliminary findings in these two investigations differ in some detail which may be pertinent to general conclusions, they confirm in their broad features the results of case history studies. They have not yet progressed sufficiently to give adequate and direct answers to several important questions which remain. It may now, however, be regarded as an established fact that white male cigarette smokers in England and in the United States suffer a substantially greater risk to cancer of the lung than non-smokers. The evidence from other countries, while generally consistent, is less convincing and complete<sup>26</sup> and no substantial data directly bearing on this are yet available for non-whites or for females of either race.

These briefly, are the apparent facts about which there is little disagreement. Controversy revolves around the conclusions which may justifiably be drawn from them. The readiest and most plausible position to be taken is that cigarette smoke is carcinogenic or co-carcinogenic to the human lung and, as a result the widespread increase in recorded mortality is in large part due to the great increase in cigarette consumption. This in general is the hypothesis which has been proposed, and by many already considered as proven.<sup>18, 29, 31, 32</sup>

It is clear that this hypothesis in its en-

distinction between the indirect and direct methods of measuring risk lies in point of departure of the study. In one it is with a series of cases and controls with all of the selective jokers involved, and in the other it is with a group of people without initial regard for the disease under study. In addition, the population method is prospective only in the sense of future disease experience, it is still retrospective in reference to attributes of the population—in this instance present and past smoking history.

tirety is untenable if the recorded increase in mortality is not in fact substantial, but instead is an artifact due to appreciable changes in diagnostic accuracy. On the assumption, however, that the increase is large, as is commonly thought by no means universally believed, it is pertinent to examine the hypothesis for its consistency with other facts of distribution of the disease in human populations.

#### CONSISTENCY WITH RECORDED INCREASE IN CIGARETTE CONSUMPTION

In both England and the United States increase in per capita cigarette consumption has generally paralleled the trend of mortality attributed to cancer of the lung. With more detailed examination of the two trends in relation to varying rates of increase in smoking and disease, and the latent period of the disease, it can be postulated that the parallelism is not entirely consistent with the hypothesis. But considering the uncertainty regarding the average latent period and the exact trend of recorded mortality, there are more secure grounds now for concluding that general similarity of the two trends is consistent with the hypothesis. This is the position generally,<sup>33</sup> though not always, taken.

Among those who do not accept this conclusion is Hueper,<sup>4</sup> who claims on the basis of relative frequency evidence from autopsy series, that an increase in lung cancer occurred prior to the great rise in per capita consumption of cigarettes. The validity of his argument is dependent upon the value of relative frequency data as measures of trends, and upon judgment as to what may be regarded as a "great" rise in cigarette consumption.

#### CONSISTENCY WITH DIFFERENCES IN RECORDED RATES AND TRENDS IN THE MALE AND FEMALE

It is a general observation that significant numbers of women did not commence cigarette smoking until well after World War I, and that since then there has been a much

larger relative increase in female smokers than male. On the other hand the relative increase in disease has been greater in the male. This observation has led some to reject the cigarette hypothesis, but as the Kenaways<sup>14</sup> so aptly expressed it—"the sexual distribution of cancer involves unknown factors, and does not provide a very secure basis for an argument of this kind." In addition, there are no quantitative data on when and to what extent women adopted the habit in this country.

While it is therefore not at all unreasonable to believe that an agent which might induce this disease in men would not do so in women, direct evidence on risk in women smokers and non-smokers might shed considerable light on the problem.

#### CONSISTENCY WITH RACIAL DIFFERENCES

In this country death rates from cancer of the lung in non-white males equal or exceed rates for the white up to about age 55. In the older ages, however, recorded rates among the white are so much greater that their total rate is considerably larger than in the non-white.<sup>34</sup> If these facts generally represent true differences between white and non-white, then they are hardly consistent with the hypothesis, but it cannot yet be said with certainty that these differences are real. Therefore, estimates of risk to lung cancer among non-white smokers are highly desirable to have, and it is to be hoped that present population studies will eventually provide them.

Statements that in some countries with largely non-white populations the incidence of cancer of the lung is very low, while cigarette smoking is just as common as here, must presently be looked upon as providing evidence neither for nor against the hypothesis. For the most part these countries are medically backward as judged by standards prevailing in Western Europe and the United States, and the so-called incidence data quoted are relative frequencies taken from autopsy series. Until better measures of incidence are available in these countries,

as well as more specific information about risk in their smokers and non-smokers, such claims must be looked upon with reserve.

#### CONSISTENCY WITH URBAN-RURAL DIFFERENCES IN RECORDED DISEASE

In England, Denmark and in the United States mortality from cancer of the lung is recorded as substantially higher in urban than in rural areas,<sup>12, 24-25</sup> and there are good reasons for believing that the differences as recorded generally reflect a real urban-rural variability in risk. English data,<sup>26</sup> as well as the study of Hammond and Horn<sup>29</sup> in this country, confirm the belief that cigarette smoking is more common among urban than among rural residents. As far these facts go, therefore, they are fully consistent with the hypothesis, and direct evidence on the point will be available from the population studies now in progress.

On the basis of estimated rates computed partly from necessarily limited case history data, Doll<sup>36</sup> has presented evidence compatible with the hypothesis that the incidence of cancer of the lung in *non-smokers* may be the same in residents of areas of different population density. Confirmation of these highly speculative rates by the population studies now in progress would greatly strengthen the cigarette hypothesis.

Most proponents of the hypothesis, however, do not claim that the entire urban-rural differences can or need be explained on the basis of urban-rural differences in cigarette smoking. They point out that urban residence imposes a more sustained and intense exposure than encountered in rural areas, to atmospheric pollutants of an industrial age. Some of these agents, they contend, might of themselves induce the disease or might act with cigarette smoke as co-carcinogens. It is pointed out that agents capable of inducing tumors in experimental animals have in fact been recovered from urban atmosphere. Except for somewhat more specific evidence for some occupational exposures, however, a major part of the

general *human* evidence for the existence of atmospheric pollutants which are carcinogenic to people is the observed urban-rural differential in disease. The argument that such agents partly account for the observed urban-rural differences, which differences themselves are cited as a major reason in human experience for the existence of such agents, represents indulgence in circular reasoning.

Nevertheless, if urban atmospheric pollutants are carcinogenic to humans, then rural residents who are least exposed to them should provide the best available subjects for testing the single factor, cigarette smoking, for its possible influence in causing cancer of the lung. Should the population studies in England and America demonstrate in rural residents that *relative* risk to this cancer is substantially greater in smokers than in non-smokers, and that the *absolute* risk in rural non-smokers of the two countries is the same—within reasonable limits of other possible differences between the countries such as diagnostic practices, etc.—then the cigarette hypothesis would be very greatly strengthened.

#### CONSISTENCY WITH VARIATIONS RECORDED IN GEOGRAPHIC DISTRIBUTION OF DISEASE

Recorded mortality from cancer of the lung in England is over twice that observed in the United States, while per capita consumption of cigarettes is considerably greater in this country. Taken alone, these facts are inconsistent with the cigarette hypothesis.

Because of the relatively high price of cigarettes in England, however, it is apparently common practice there to smoke each cigarette more completely than in this country. Proponents of the cigarette hypothesis contend that because of this difference in smoking habits, observed comparative cigarette consumption does not reflect true differences between the two countries in tobacco actually smoked; and that higher mortality in England might

therefore be expected in spite of the fact per capita consumption is much less than in this country. It might also be postulated that part of the discrepancy in mortality could be due to the greater concentration of England's population, and thus to whatever causes there are that increase recorded risk in more urban areas.

On the other hand, even in the United States considerable variation in mortality attributed to lung cancer has been demonstrated among the States.<sup>34</sup> Similar variation extends to the large cities of 100,000 or more population, where a 5-fold difference has been observed between those with the highest and lowest rates.<sup>37</sup> It is difficult to believe that smoking habits in our large cities are sufficiently different to account for variations of this magnitude.

Some would contend, however, without any very direct supporting evidence, that such differences are due, in addition to cigarettes, to many additive factors such as occupational exposures and atmospheric pollution. This would hardly appear plausible with relatively non-industrial New Orleans recording a substantially higher mortality rate than either Pittsburgh or Detroit.<sup>37</sup> In addition, among the smaller sections of two large cities, significant variations in lung cancer have been recorded.<sup>38,39</sup> These are presently difficult to understand as reflecting intracity variation in diagnosis, cigarette smoking or atmospheric pollution. No direct evidence bearing on any of these possible factors is available for these cities at the present time.

#### CONSISTENCY OF THE INTERNAL EVIDENCE OF CASE HISTORY STUDIES

In all of the studies in which it has been tested, estimated risk increases with quantities smoked, which is what one would expect if smoking caused the disease. One would also expect, as observed in other cancers of environmental origin, that as quantities smoked increased the average age at onset of disease would be reduced. This was not so in our study<sup>25</sup> and though the

point has not been examined in others, it may not be of too much importance.

Much emphasis has also been placed on the importance of duration of smoking. However, the association noted between duration of smoking and development of disease may be an artifact, since methods employed in analyzing this have not adequately separated age of patient from duration of smoking. If current population studies should not provide enough data to test this very important point adequately among males, then the desirability of data for females is further emphasized because of the greater likelihood of separating the two factors (age and duration of smoking) in female disease and smoking experience.

All authors in converting smoking histories from the cases and controls of case history studies into estimates of relative risk in smokers and non-smokers, have standardized the smoking results to some one particular set of prevalence, incidence or mortality rates. This procedure, which with data presently available is necessary to the point at issue yields from the findings of several studies *varying* estimates of relative risk in smokers and non-smokers, and *similar* estimates of risk in smokers.<sup>21,28</sup> The similarity in the estimates of risk for English and American smokers, which are derived from this procedure, however, should not be taken as indicating that English and American smokers experience the same *absolute* risk to disease. Comparison of absolute risk in English and American smokers, by means of estimates derived from data now available, requires conversion of smoking histories from each country into risk estimates by means of disease rates observed in each.

Such estimates as can be made in this fashion with published data, suggest that both smokers and non-smokers in England experience an absolute risk of about twice that observed in each class of Americans. These estimates, however, are too speculative and involve too many unknowns to be taken seriously. They do emphasize, never-

theless, the importance of present population studies which will permit more direct and adequate comparisons. The results of these studies are therefore awaited with considerable interest, particularly as they relate to absolute risk in non-smokers of the two countries, and more particularly, to comparisons of absolute risk in rural non-smokers.

Two recent case history studies<sup>25, 40</sup> have provided evidence, additional to that found in earlier literature,<sup>41</sup> that liability to cancer of the larynx is significantly increased in white male cigarette smokers.\* Mortality recorded from cancer of the larynx, however, has increased slightly less than 2 times in white males during the same period that a 25-fold increase in lung cancer has been noted. Incidence rates for the two diseases have shown similar differential increases.<sup>7</sup>

Thus, there are two respiratory cancers which presently appear to be associated with cigarette smoking. In one, recorded mortality has increased somewhat commensurate with increase in per capita consumption of cigarettes, while in the other this has not occurred at all.

While these facts may not themselves be inconsistent with the cigarette hypothesis they are also compatible with an alternative interpretation of the significance of the association between smoking and cancer of the lung. This interpretation holds that the association is an indirect one and that the common denominator is not cigarette smoke at all but some presently unknown patient attribute or factor which is more commonly present in people who also smoke. I am aware of no other evidence directly consistent with this interpretation except the demonstration in one case history study<sup>43</sup> that smokers also suffer an excess risk to

both tuberculosis and pneumonia. Whether or not this is a general fact cannot be determined from one case history study, but if true, lends support to, but by no means proves, the contention that the association between cigarettes and lung cancer may be an indirect one.

What, finally, is required for establishing "proof" of the cigarette hypothesis; or on the other hand, upon what grounds may it be rejected entirely? "Proof" in the mathematical sense is unattainable in dealing with medical phenomena.<sup>44, 45</sup> Direct experimental verification in humans "is possible to conceive but impossible to conduct."<sup>45</sup> Indirect experimental verification in humans, through country-wide discontinuance of smoking and subsequent determination of trends of the disease, could be practically accomplished only by informing the public that the disease is caused by cigarettes. If this is true, the procedure is unnecessary as an experiment. Production of the disease in experimental animals, under conditions simulating human smoking, would strengthen though not establish the hypothesis, but inability to do so would in no circumstance justify its rejection.

It is perfectly clear, nevertheless, that the hypothesis cannot now be rejected without some alternative explanation for present evidence which indicates that white male cigarette smokers in the United States, in England, and possibly elsewhere experience an excessive liability to this cancer. Although it is entirely conceivable that smokers might experience an excessive risk without the habit having any necessary causal connection, no facts at all have yet been presented which offer any plausible reason why this might be so. Further, even if it could be demonstrated with certainty that recorded increase in disease is not real but an artifact due to changing diagnostic practices, then only a part of the hypothesis could justifiably be rejected. It would still be necessary to give an alternative explanation for increased risk in smokers.

We are left for "proof," therefore, with

\* The association in one, the study of Schrek et al.<sup>40</sup> was between cigarette smoking and cancers of the larynx and pharynx. Since two other studies<sup>25, 42</sup> showed no association with pharyngeal cancer, it is assumed that the association here was with cancer of the larynx.

indirect and circumstantial evidence derived largely from considerations of the pathogenesis of the disease in individuals,<sup>4</sup> and its observed distribution in human populations: in short, with epidemiological evidence.<sup>28</sup> It is a matter of opinion how many and what facts must be consistent before this hypothesis may justifiably be accepted or rejected. Further, it is unlikely that the detailed facts needed can be entirely predicted in advance. In the development of medical knowledge it has been general experience that acquisition of new facts has sired hypotheses, which in turn has stimulated search for evidence in their support and for evidence contrary to their credibility. This has frequently led to modification of the hypothesis to conform to new facts which the controversy generated. The tobacco controversy has stimulated a large number of new observations on the distribution of cancer of the lung in human populations, and has led to critical re-examination of other apparent facts. Many of these facts, as outlined earlier, appear fully consistent with the hypothesis, some presently appear inconsistent, and perhaps the majority still remain inadequately tested.

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# Potentials of Chemotherapy in Cancer\*

By

JOHN R. HELLER, M.D.\*\*

CHEMOTHERAPY was first conceived as a science by Ehrlich in 1908. Its use in cancer patients, however, is much older. Various cancer remedies—drugs and poisons by the hundreds from the “mineral and vegetable” kingdoms—have been administered with uniformly poor results since the day of Hippocrates.

Yet the search for a chemical cure for cancer continues. The powerful incentive for research in chemotherapy is the fact that with the presently available methods of treating cancer, only about 25 percent of all patients are cured. The most optimistic estimates of results that could be obtained with the earliest application of the most effective methods of surgery and of radiation in all patients would perhaps double that figure. Thus, for one-half or more of all cancer patients, hope must lie in other forms of therapy. Only the developing science of chemotherapy appears to offer the promise of agents which will seek out and destroy the malignant cells wherever their location.

Until recently, research in chemotherapy of cancer has been an unpopular field. Disappointments have been so numerous that many investigators have doubted that such research could ever succeed. So difficult has the problem appeared to some that it has been likened by Woglom<sup>12</sup> to a search for a systemic agent “that will dissolve away the left ear yet leave the right ear unharmed.”

During the last 10 years, however, there has been a striking change of attitude toward this line of research. The rate of in-

vestigations in the chemotherapy of cancer has increased so much that today chemotherapy ranks as one of the major areas of cancer research. The change of attitude resulted from a number of developments, among them the successes achieved with the sulfa drugs and the antibiotics and, more important, the demonstration that there are chemical agents, such as the nitrogen mustards, capable of affecting tumors. Another contributing factor has been the increase since World War II in public support given to cancer research. Through the U. S. Public Health Service and the American Cancer Society, funds available for cancer research in the United States have increased from about one million dollars per year before the war to more than fifteen million annually during the past two years. Many investigators in the cancer field believe that the time is ripe for expanded chemotherapy studies. A program to support such expansion was activated in 1953 by the Public Health Service, U. S. Department of Health, Education, and Welfare. Emphasis in the program, administered by the National Cancer Institute, is on the development and clinical trial of new anti-leukemia agents.

Current research in cancer chemotherapy is of two broad types: fundamental studies of normal and abnormal growth, and the empiric trials of chemical compounds against neoplastic disease. If, through biochemical and metabolic studies, the functioning of cancer and of the tumor-bearing host can become thoroughly understood, a chemotherapeutic approach may be suggested from this understanding. Or, the systematic testing of compounds may lead to a successful drug prior to a thorough understanding of cancer. Both approaches merit continued support and effort.

Investigators engaged in research on

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chemotherapy of cancer must overcome a number of imposing difficulties—pointed out recently in several reviews.<sup>8, 10, 12</sup> One of the major difficulties is the lack of an adequate laboratory test subject or method. Numerous techniques of screening and testing compounds on tumors in experimental animals have been used. More than 12,000 compounds have been tested in screening programs and hundreds have shown the ability to damage tumors. There is no clear relation, however, between the responses of animal tumors and the therapeutic effectiveness in man. If human cancers could be transplanted to animals, a better screening of compounds might be possible. Recent work on the serial transplantation of human tumors in animals, such as that of Toolan at the Sloan-Kettering Institute, gives promise of providing the preparation of human cancer cells that may be essential to a suitable anti-tumor screen. It should be pointed out, however, that in all experiments thus far human tumors have been grown only under artificial conditions and it remains to be seen whether this method offers advantages. Further intensified research into methods of bioassay is one of the essential areas of research in the chemotherapy of cancer.

In the past decade, research has yielded several agents which are useful in the treatment of certain types of tumors. While not one of these agents is a cure for cancer in any form, their use has contributed significantly to the comfort of patients, in certain cases actually prolonging life, and in many cases permitting periods of useful living not possible before. The agents having an established role in the chemotherapy of human cancer are classified often as: (1) those which alter the hormonal environment in organs, such as the breast and prostate, where certain cancers have been found to be hormone dependent, (2) those which act as mitotic poisons, and (3) those which function as antagonists to the metabolic incorporation of substances essential to cell growth. Full discussions of the various

agents have been published in reviews on cancer chemotherapy by a number of investigators, among them Haddow,<sup>4</sup> Gellhorn,<sup>8</sup> Stock,<sup>10</sup> Shimkin and Bierman,<sup>9</sup> Rhoads,<sup>7</sup> and Karnofsky and Burchenal.<sup>6</sup>

#### HORMONAL ALTERANTS

The sex hormones are widely used in the treatment of cancer of the prostate and breast. In cases of disseminated prostatic cancer, orchiectomy and the administration of estrogens have given rapid subjective and objective improvement and increased life expectancy as much as 3 or 4 years. This important advance in the treatment of disseminated carcinoma is based upon the work of Huggins at the University of Chicago, on the physiology of the prostate gland in dogs, which was applied clinically to cancer in man in 1941. Huggins has extended his research to the trial of bilateral adrenalectomy in patients with prostatic and mammary cancer who were refractory to other therapy and has obtained improvement in their condition for variable periods of time.<sup>5</sup>

The effects of estrogens on advanced mammary cancer were determined in 1944 by Haddow in clinical trials at the Chester Beatty Institute, London. Later, the status of hormone therapy of advanced mammary cancer was delineated by a national study group appointed by the Council of Pharmacy and Chemistry of the American Medical Association.<sup>11</sup> There is evidence that the life-span of patients with advanced mammary cancer is prolonged by an average of at least 6 months by the use of estrogens or androgens.

Adrenocorticotrophic hormone (ACTH) and cortisone have been tried against a variety of tumors. At present, their main use in neoplastic diseases appears to be in combination with the folic acid antagonists, myleran, or 6-mercaptopurine in the management of acute lymphomas.

#### MITOTIC POISONS

The mitotic poisons display marked inhibiting effects upon the hemic, lymphatic,

and gonadal tissues. Since their effects resemble those of ionizing radiation, they have been termed "X-ray mimetic." The most widely used of the mitotic poisons are the nitrogen mustards. Studied intensively in World War II as potential chemical warfare agents, they were introduced into the therapy of cancer in 1943 by Gilman and associates at Yale and Jacobson and associates, University of Chicago. Extensive clinical trials show that the nitrogen mustards are useful in the temporary arrest of Hodgkin's disease and lymphosarcomas and have some effectiveness in bronchiogenic carcinoma.

Several hundred derivatives of nitrogen mustard have been synthesized and studied in the laboratory. One which has shown promise in recent clinical trials is triethylene melamine (TEM). It appears to be effective in the same types of cancer which respond to nitrogen mustard.<sup>1</sup>

Another promising new agent is myleran (GT-41), introduced in 1950. Clinical tests have shown myleran to have specific, beneficial effects in granulocytic leukemia. Older agents useful in the management of this type of leukemia are potassium arsenite (Fowler's solution) and ethyl carbamate (urethane). Urethane has also shown beneficial results in the treatment of patients with multiple myeloma.

#### METABOLIC ANTAGONISTS

Examples of the metabolic antagonists are the antifolic acid compounds, exemplified by aminopterin, and 6-mercaptopurine (6-MP). Both agents have clinical usefulness in the lymphomas, particularly in acute leukemia. The basic biochemical and organic synthetic work on the anti-folics was done by Subba-Row and associates at the Lederle Laboratories. Farber and associates of the Children's Hospital, Boston, demonstrated in 1948 that aminopterin produced remarkable clinical remissions in a large number of children with acute leukemia.<sup>2</sup> Subsequently this observation has been greatly extended by other clinics, and amethopterin,

a derivative of aminopterin, has come into clinical usage. The remissions that occur with the folic acid antagonists are only temporary. Anti folic treatment, however, has been estimated to extend average survival in children who do respond by more than one year.

The agent 6-mercaptopurine is a product of the research by George Hitchings and co-workers of the Burroughs Wellcome Laboratories on nucleic acid synthesis. Burchenal and co-workers at the Sloan-Kettering Institute and a number of other investigators have reported 6-MP's effects in patients with leukemia and other neoplastic diseases. Their reports indicate that 6-MP may be a useful agent in the treatment of leukemia and that, in contrast with the folic acid antagonists, its activity is not restricted to childhood. Additional experience with this agent is needed to delineate its usefulness. It is the first example of a purine analog with demonstrable anti-leukemic activity and as such it is a stimulus to further research in purine and pyrimidine derivatives that interfere with nucleic acid synthesis.

The possibility of attacking the cancer cell's metabolism simultaneously at several different points has led to a number of studies on combination therapy. Burchenal at Sloan-Kettering and Law at the National Cancer Institute have shown that the decreasing effectiveness of repeated courses of antifolic acid therapy in leukemia is the result of the progressive destruction of susceptible cells and the unrestrained multiplication of resistant ones until only the resistant cells are left. Cells resistant to one drug may be susceptible to another and combination therapy may be the means of wiping out all the cells at the start.

#### OTHER AGENTS

Many chemical compounds which looked promising in the laboratory but fell short of expectations in clinical trials have been recorded recently. Among them are avidin, synkavite, pyridoxine, stilbamidine, chymotrypsin, podophyllin and several other prod-

ucts of plant origin, and bacterial polysaccharides. Of more recent interest, but lacking data for evaluation, are a colchicine analog that demonstrates effects in chronic granulocytic leukemia, azaserine, an amino acid analog, and actinomycin C in Hodgkin's disease.

#### CONCLUSION

Enough work has been done in this field to indicate that it is not a hopeless approach to cancer control. Expectations that more effective agents will be developed are better justified today than 10 or 15 years ago. However, a single drug which will control all the major types of human cancer is not to be expected. For example, what may be found to be effective against leukemia may have no effect against other forms of neoplastic growth. There is much evidence that each type of cancer in man represents a different chemotherapeutic problem, and since there are many types of cancer, a varied array of drugs may be needed.

In the past decade more advances have been made in the chemotherapy of cancer than in any previous period. Yet research in this field is apt to progress slowly and should be visualized as a long-term effort in which the perseverance of the investigators is a highly important factor. It is self-evident that such investigators should be assured adequate financial support. On the other hand, the aim of chemotherapy would be ill-served if its expansion were made at the expense of basic biological and biochemical studies or of constant efforts to improve the

known techniques of surgery and radiation. All these approaches are important. They do not compete; rather, they complement one another.

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# The Chief Medical Problem in Military Medicine: Peptic Ulcer; Medical Aspects\*

By

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**P**EPTIC ulcer, especially duodenal ulcer, always has been an important problem in the armed services. While significant figures are difficult to obtain, recent reports suggest that ulcer disease has become the chief medical problem in the forces in Europe, representing as high as 10 per cent of medical hospital admissions. These reports indicate that infectious hepatitis is of secondary importance at present.

For the purposes of this discussion the remarks will be limited to duodenal ulcer disease, since most observers agree that gastric ulcers should be considered in a separate category.

Not only is the incidence of ulcer disease high, but the man hours lost are great when one realizes that most of these patients spend weeks in the hospital with the initial attack and that recurrences and complications with subsequent hospitalization are the rule rather than the exception.

The actual loss in man-power may be greater than any statistics suggest, since many servicemen with ulcers are intense, hardworking individuals in responsible positions. Palmer and Sullivan<sup>1</sup> call attention to the fact that many military geniuses have suffered from duodenal ulcer. They further state: "There appears to be little middle ground; the soldier with ulcer who does not prove superior is usually notably inferior in

his own performance and in his influence on his unit's effectiveness."

There seems to be little doubt of the accuracy of diagnosis in modern military establishments. It would appear that in all centers, a diagnosis of peptic ulcer is dependent upon definite x-ray demonstration; not upon suggestive symptoms only. It is reported that radiologists in the European Theatre are finding as high as 60 per cent positive x-ray findings of ulcer in routine G.I. x-rays as compared with about 20 per cent in the U.S.A. The correctness of the diagnosis is further attested by the fact that a recent surgical consultant to the Surgeon General,<sup>2</sup> stated that the complications of ulcer: perforation, hemorrhage, and obstruction, occur in about the expected percentage of these ulcer patients; probably 10 per cent.

## COMPARATIVE INCIDENCE OF DUODENAL ULCER

Dr. Franklin White,<sup>3</sup> in discussing the incidence of peptic ulcer, calls attention to the findings of Jennison in 14,000 insurance company employees where the incidence of duodenal ulcer by clinical and x-ray examination was 7 per cent (1938). Hurst, Eusterman and others have estimated that at least 10 per cent of the male population have a duodenal ulcer at some time in their lives.

In highly selected young military personnel the incidence is much lower than in civilians of all age groups. Hamilton, Sullivan and Palmer<sup>4</sup> report admissions to military hospitals for duodenal ulcer between 1.37 per 1,000 mean strength per year in 1937 to 3.05 in 1943. In 1948 the figure had fallen to 1.67. While these figures do not include duodenal ulcer patients not hospitalized or patients with ulcers hospitalized for other reasons, they do give an

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TABLE I  
ADMISSIONS FOR PEPTIC ULCER IN THE UNITED STATES ARMY (TOTAL ARMY) BY YEAR, 1937-1948\*

Year	Number			Annual Rate Per 1,000 Mean Strength		
	Total	Gastric Ulcer	Duodenal Ulcer	Total	Gastric Ulcer	Duodenal Ulcer
1937	296	55	241	1.68	.31	1.37
1938	323	72	251	1.76	.39	1.37
1939	383	69	314	2.00	.36	1.64
1940	507	108	399	1.50	.32	1.18
1941	4,004	603	3,401	2.98	.45	2.53
1942	10,935	1,503	9,432	3.37	.46	2.91
1943	23,361	2,411	20,950	3.40	.35	3.05
1944	20,651	1,451	19,200	2.65	.19	2.46
1945	15,285	910	14,375	2.02	.12	1.90
1946	3,345	225	3,120	1.54	.10	1.44
1947	1,666	189	1,477	1.60	.18	1.42
1948	1,829	202	1,627	1.88	.21	1.67
1937-1941	5,513	907	4,606	2.47	.41	2.06
1942-1945	70,232	6,275	63,957	2.76	.25	2.51

\* Data for 1942-1948 are preliminary, based on sample tabulations of individual medical records.  
From Hamilton, Sullivan and Palmer: *U. S. Armed Forces Med. Jr.*; 3: 832, June 1952.

idea of the trends. "Admission rates for peptic ulcer were significantly greater among troops in training or in inactive areas than among troops actively engaged in combat." These same authors report that in 1950, 21 of 10,000 (or 2.1 per 1,000) draft registrants were found unsuitable for military duty because of peptic ulcer or a history of peptic ulcer. These figures are not significantly different from the above military admission rate.

While available figures are inadequate to permit comparison of the relative incidence of peptic ulcer in civilian and service personnel, the above figures do not suggest a great disparity between individuals in the service and in draft registrants. The high hospital admission rate may indicate frequent recurrences in a limited number rather than a high incidence of ulcer disease per 1,000 troops.

#### FACTORS INFLUENCING HIGH ADMISSION RATE

It is generally agreed that a duodenal ulcer is a local manifestation of a constitu-

tional disorder. Of the many factors involved in the pathogenesis of ulcers and their cycles of healing and recurrence, the psychiatric aspects are of prime importance. The impact of these influences may be manifested by increases in gastric secretion and motility or decrease in tissue resistance or both.

The psychic factors in service personnel have to do with poor motivation and unsatisfactory integration into the armed services. These are always accentuated during a period of enforced service. This is indicated by the figures in Tables I and II and also by the observation of Hayman<sup>5</sup> that the incidence is much higher in those with less than four years of service than in those with over ten years of service (40 per cent as compared with 28 per cent).

A psychiatrist, in discussing the psychic aspects of this problem, probably would point to the feelings of frustration, hostility, insecurity and lack of purpose commonly seen in any peace-time army, particularly on foreign shores. Other conditioning factors may include assignment to duties for

which a man is unqualified or promotion to a grade too high for his abilities.

Poor habits of hygiene may also be important. Service personnel notoriously indulge in irregular eating practices, often eating highly seasoned and native foods. Drinking and smoking may be excessive. Add to these influences the easy hospital life and a chance to be evacuated Stateside, and one has a situation unfavorable to a good prognosis in ulcer disease.

The problem, therefore, seems to be one of a high hospitalization rate for peptic ulcer, probably largely on the basis of frequent recurrences of symptoms in a group of men who are poorly motivated or who have been poorly integrated into the service. This is indicated by an incidence almost twice as high in those with under 4 years of service than in those regulars with more than 10 years of service.

#### SUGGESTED MEASURES

If this premise is accepted, what suggestions might be made to assist in handling the problem? In the first place one might ask whether adequate treatment is given these ulcer patients. Most students of the subject believe that a satisfactory program should include the following:

- 1) Decreased stress: vacation, hospitalization, and sedation;
- 2) Gastric rest: hourly feedings or at least frequent bland feedings;
- 3) Avoidance of stimulants: tobacco, caffeine, alcohol and condiments;
- 4) Medication: antispasmodics and anti-

cholinergics, antacids and demulcents;

- 5) Education and prolonged follow-up to prevent recurrences.

It is a dictum of gastroenterologists that in treating ulcer disease, the patient should become symptom-free in 24 to 48 hours. If this is not the case, then either the diagnosis is incorrect or the program is not strict enough, or the ulcer is complicated by perforation, obstruction or marked psychoneurosis. In civilian practice 80 per cent of simple ulcers become quiescent promptly and most remain so if adequately followed.

A sufficiently strict medical program would probably accomplish the same prompt healing or remission in military practice. There is some doubt that stringent programs are always insisted upon in military establishments. Smoking is seldom prohibited, coffee is often allowed, or at least obtained, and passes and leaves are granted before giving an adequate chance for healing (4 to 10 weeks).

The greatest problem in handling ulcer disease is the prevention of recurrences. Here education is a great factor. Group instruction could be well utilized in imparting information regarding the causes of ulcer and the principles of treatment together with the dangers of possible complications. But this will probably accomplish little without promoting improved morale and motivation. Efforts along this line by group therapy have not proved encouraging. There must be a more individualized approach. Whether such a program is practicable in the armed services is questionable.

TABLE II

ADMISSIONS TO HOSPITAL AND QUARTERS FOR PEPTIC ULCER BY THEATER OR AREA\*  
(Annual rate per 1,000 mean strength)

Year	Europe	Pacific	Latin America	U. S.	Total Overseas	Total U. S. and Overseas
1943	3.38	2.57	2.10	3.73	2.36	3.40
1944	1.35	1.36	1.95	3.89	1.36	2.65
1945	1.15	.79	2.33	3.57	1.04	2.02

\* From Hamilton, Sullivan and Palmer: *U. S. Armed Forces Med. Jr.*; 3:833, June 1952.

The following program might prove helpful, at least in clarifying the problem:

- 1) At time of first admission, institute very strict therapy for 4 to 6 weeks with a program of education and prompt return to duty.
- 2) In case of recurrence, another period of 2 to 3 weeks strict therapy without smoking, allowing no leaves or passes and followed by 2 to 3 weeks of strenuous drill and other activities to make hospitalization less attractive than active duty.
- 3) Further recurrences should be individually studied and disposition decided upon by a combined medical and administrative board.

Palmer and Sullivan quote Colonel R. J. Hoagland, who summarized his attitude toward the ulcer problem as follows: "In my opinion a soldier with peptic ulcer who has less than 6 years' Service has no place in the Regular Army, which should be a hard core around which a civilian army is built. This belief is based on the experience that during the hardships of training and combat, persons with peptic ulcer will probably become liabilities in that (1) many will use their ulcer history as a means of getting out of undesirable or hazardous duties; and (2) the psychic and physical requirements of training and combat contribute largely to the recurrence of ulcers. The result is loss of a key person just when he is most needed and can least be spared, additional work for already overworked medical and administrative personnel, and one more man to be sent back to the zone of the interior.

"I believe that when a man has more Service, especially if he has more than 12 years, 2 other factors should be considered. First, the moral responsibility we have toward a man who has given 12 or more

years of his life to the military Service; and second, the chance that the increased length of Service has given him much technical knowledge, which may outweigh the hazard of retaining him in the military Service in spite of his ulcer.

"When a man who has between 6 and 12 years' Service is discovered to have a peptic ulcer, I think that the decision concerning his retention in the Service should be based on (1) his desire to remain (for if he does not want to remain, he will complain of ulcer symptoms whenever it is advantageous for him to do so); (2) our opinion of his psychic stability; and (3) our opinion of his potential value to the Service."<sup>8</sup>

This opinion is quoted at length because it appears to state sound principles of handling the chronic ulcer problem in the Services. There remains a possibility, however, that a number of early ulcer patients could be salvaged, if a more definite therapeutic program could be instituted.

In view of the importance of the problem at present, especially in foreign duty troops, it is suggested that a commission or board of investigation be activated to obtain more definite statistics of the incidence and recurrence rates and to study the feasibility of setting up more strict treatment programs. The results of such a program could then be evaluated and a more intelligent approach to the ulcer problem in the Armed Services might result.

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- <sup>6</sup> Hoagland, R. J.: quoted by Palmer and Sullivan; Ibid. 456.

# The Dentist and Dental Laboratory Responsibilities in Rendering Prosthetic Treatment\*

By

COLONEL LYNN C. DIRKSEN, DC, USA\*\*

A DENTIST'S primary responsibility of serving the patient is discharged by giving the highest type of service of which he is capable and by avoiding any conduct, personal or professional, which leads to a lowering of esteem of the profession of which he is a member. This giving of the highest type of service is especially applicable in the prosthetic treatment area because any errors consummated will be a continuing adverse testimonial of someone accepting something less than the best as a treatment procedure. The dentist, when accepting a case for fabrication of a complete or partial denture, immediately assumes the responsibility of restoring dental function, esthetics, and phonetics within the bounds of tissue tolerance. The measure of success obtained in any given case is directly proportionate to the effort and accuracy expended in accomplishing a thorough examination, diagnosis, treatment plan, mouth preparation, impression procedure, cast pouring, and jaw relationship recording. The measure of failure in any given case is directly proportionate to the operators eliminating or inaccurately accomplishing any of the above concepts and procedures.

The superior qualities of the material available for fabricating artificial dentures today makes it possible for the prosthetic patient to obtain a tissue compatible artificial denture which compliments their appearance rather than condemning them to the classical denture look. However, materials alone do not make the denture but rather it is the

meticulous observation and execution of all clinical and laboratory procedures which make today's esthetic and functionally tolerable dentures possible. The prosthetic abor-tions some patients are wearing and which are more appropriately termed, "dental plates", are the end result of hasty short cut examination, diagnosis, and mouth preparation procedures based on a false concept of dollars, work load, or production reports. As a respected branch of the healing arts, are we justified in subscribing to a prosthetic procedure based on inadequate diagnosis, haphazard impression procedures, "mush" bite jaw relation recording procedures which are then channeled to a dental laboratory with quickly pencilled instructions which read: "please design and construct a partial denture?" To fulfill our professional obligations to our prosthetic patients, I believe we should accept the full responsibility for all phases of complete and partial denture planning and designing by meticulous application of all principal components of examination, diagnosis, treatment planning, mouth preparation, prior to initiating cases for laboratory fabrication. To discharge these obligations and treatment concepts adequately, in my opinion, the following clinical prosthetic procedures are mandatory:

## A. For Complete Denture Cases:

1. A complete X-Ray examination of the residual ridges.
2. Examining for and removal of enlarged tuberosities, excessively flabby tissue, sharp spicules of bone and enlarged tori.
3. The making of accurate fully extended impressions of the residual ridges.
4. The making of accurate, stress free centric jaw relationship records utilizing stable fully extended bases.
5. The placing of the post dam for uppers

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together with an indication of the amount of relief desired in the torus palatinus area.

6. The selection of the mold and shade of the anterior teeth required for each case.

7. Careful evaluation and alternation of the technician's set-up at the "try-in" stage.

8. Alteration of tooth positions and buccal and palatal wax contours for maximum stability and phonetic clarity.

9. Carving appropriate buccal and labial wax contours to provide maximum retention and esthetic contours.

#### B. For Partial Dentures:

1. A complete X-Ray examination of the remaining teeth and residual ridges.

2. A thorough prophylactic treatment and elimination of all predisposing causes of existing periodontal lesions.

3. Replacement of all defective restorations.

4. Restoration of all carious teeth.

5. Removal of all excessively malposed and/or extruded teeth.

6. Alteration of minor and exaggerated abutment tooth contours by judicious grinding or complete restoration.

7. Preparation of adequate, stress resisting rest seat areas in all surfaces of abutment teeth that face edentulous ridge areas.

8. Preparation of additional stress resisting rest seat areas in additional teeth for indirect retention.

9. Equilibration of the occlusion and cusp inclinations of remaining natural teeth.

10. Accurate selection, adaptation, and/or fabrication of impression trays to meet tissue coverage requirements.

11. Accurate manipulation of chosen impression materials.

12. Accurate cast pouring.

13. Selection of mold and shade for upper anterior tooth replacements.

14. Survey and design of the metal framework, together with tripod markings and a written prescription drawing.

These basic fundamental principles of complete and partial denture therapy are the minimum requirements necessary to fulfill the treatment objectives outlined. The ex-

tent to which a complete or partial denture will contribute to the rehabilitation and conservation of the remaining oral tissues is in direct ratio to the number of the above treatment principles utilized by the dentist in all clinical procedures. I again emphasize the point that if the complete and partial denture is to be elevated above the status of a "dental plate" or "space filler" and more completely satisfy the requirements of mouth rehabilitation and conservation, dentists must more completely assume their treatment responsibilities which is professionally and legally theirs:

#### DENTAL LABORATORY AND DENTAL TECHNICIAN RESPONSIBILITIES

First I wish to clarify my viewpoint relative to the position of responsibility to be occupied by the dental laboratory technician relative to prosthodontic therapy. It is my belief that the dental laboratory technicians should occupy the same status which currently exists between the medical profession and the pharmacist; namely, that the pharmacist fills the physicians prescription. The pharmacist does not prescribe treatment, a responsibility some dental technicians try and do assume; and furthermore, a treatment responsibility which some dentists are perfectly willing to pass on to this non-professional group. If these treatment trends are allowed to continue I need not remind you of the consequences which ultimately will prevail, in this most important terminal treatment phase of dental practice. The dental laboratory mission in prosthodontic therapy begins after the dentist has completed all the professional objectives outlined. The dental laboratory technician is responsible for accurately interpreting and executing the specifications of the dentist's prescription. To correctly and accurately accomplish this mission the following laboratory procedures are recommended:

#### A. For Complete Dentures:

1. The master casts must be accurately mounted in an articulating instrument and keyed for remounting after processing.

2. The anterior teeth specified must be articulated in accordance with the dentist's specifications or in compliance with current acceptable procedures.

3. The posterior teeth must be articulated and balanced in all centric and eccentric movements of the instrument.

4. The buccal, labial and palatal areas must be waxed and contoured in accordance with the dentist's specifications or in compliance with currently accepted procedures.

5. The completed waxed denture bases must be accurately flaked utilizing plaster accurately weighed and room temperature water measured in exact proportions.

6. Wax eliminations must be complete and thorough.

7. The acrylic resin must be accurately mixed, packed, and processed in accordance with currently accepted standards.

8. After the dentures are cured, they should be remounted in the articulator and minor occlusal adjustments made by selective spot grinding.

9. Cured dentures must be accurately polished and all peripheral anatomical landmarks preserved.

10. Completed dentures to be returned to the dentist in a moist atmosphere.

#### B. Partial Dentures:

1. The master casts must be accurately mounted in an occluding instrument and keyed for remounting after processing.

2. The master cast must be accurately positioned in the surveyor in accordance with the dentist's tri-pod position and accurately blocked out in accordance with the dentist's prescription.

3. All refractory investment, for making the refractory cast, must be accurately weighed and room temperature water measured to provide the maximum expansion properties.

4. The refractory cast must be accurately waxed in accordance with the dentist's prescription. Bracing and retention requirements must be carefully and accurately executed.

5. All castings must be accurately finished

and polished and seated on the master cast without distorting the stone abutment tooth surfaces.

6. The artificial teeth specified must be accurately articulated in accordance with the dentist's specifications.

7. All flaking, dewaxing, packing, and curing procedures to be accomplished in accordance with currently accepted standards.

8. Cured dentures to be accurately polished and all peripheral anatomical landmarks preserved.

9. Completed dentures to be returned to the dentist in a moist atmosphere.

Accomplishing the above laboratory procedures with the care and precision as outlined would provide the dental laboratory and dental technician with all the incentives necessary for self-improvement and markedly elevate current laboratory fabrication standards.

#### ARMY CENTRAL DENTAL LABORATORY MISSION AND OPERATIONS

The mission of army central dental laboratories in the continental limits of the United States is to fabricate prosthetic appliances for posts, camps, and stations in the respective army areas. The army dental laboratory does carefully scrutinize, eliminate and/or suggest corrective measures in mouth preparation, cast pouring, and jaw relationship recording so that the army prosthetic patient will be assured of the most adequate prosthodontic therapy currently available. The following laboratory fabrication techniques are standard operating procedures:

1. In lieu of cases having been surveyed and designed as prescribed as the dentist's responsibility, the dental officers assigned to these laboratories accomplish this phase of treatment. A prescription of the proposed appliance is drawn on a prescription blank to the dental technician.

2. All partial dentures are cast and the palate exactly duplicated.

3. All complete dentures are provided

with a stippled buccal and labial contour and are then tinted.

4. The labial flanges of all partial dentures are provided with a stippled surface and are tinted.

5. All complete dentures and bilateral distal extension partial dentures are recovered from the flask, after processing, and the occlusion carefully spot ground.

6. All isolated replacements for partial dentures are cast and the buccal surfaces provided with tooth colored resin.

7. All completed complete and partial dentures are returned to the station in plastic bags with water added to prevent the dentures from losing water.

8. Approximately 600 partial denture castings are returned to stations for try-in of the framework and completed locally. (This is a most desirable procedure since the metal casting is made by experienced and/or supervised dental technicians in the laboratory. The inexperienced station dental technicians are then utilized to complete the appliance under the direct supervision of the station dental officer.)

9. Each of the Army's five central dental laboratories are currently fabricating 1200 prosthetic cases per month. The five central dental laboratories are currently fabricating

5000 cast partial dentures per month.

10. The average time in laboratory for the various types of appliances fabricated are:

- a. Complete dentures ..... 4 to 5 days
- b. Partial dentures ..... 10 to 12 days
- c. Partial denture castings ..... 5 to 7 days

These army central dental laboratory procedures provide the army prosthetic patients with the most accurate appliance available. This is directly proportionate to the efforts expended by the station dental officer in accomplishing the recommended procedures of examination, diagnosis, treatment planning, and mouth preparation.

In conclusion, the dentist is responsible for and must accept the full responsibility for all phases of complete and partial denture planning and designing by meticulously applying the treatment principles outlined. Conversely, the dental laboratory and dental technician is responsible for completely and accurately filling the dentist's prescription. Prosthodontia accomplished in the manner prescribed for both dentist and dental technician would elevate the artificial denture above the status of the "dental plate" and provide our army and civilian prosthetic patients with the ultimate objective in prosthodontic therapy.



SPECIAL DENTAL LECTURES will be held at Walter Reed Army Medical Center (Room 276, Army Medical Service Graduate School) on the following dates: March 17, 3:00-5:00 P.M.; March 21, 1:00-5:00 P.M.; March 22, 1:00-3:00 P.M.; March 23, 10:30 A.M.-noon; March 28, 1:00-5:00 P.M.; March 29, 10:30 A.M.-3:00 P.M.; March 31, 2:30-5:00 P.M. A cordial invitation is extended to all interested persons to attend any or all of these special lectures.

# The Membrane-Filter Technic in Microbiological Assays of Water and Other Vehicles of Hygienic Significance: A Status Report\*

By

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(With two illustrations)

THE use of selectively permeable, colloidion membranes in biological and clinical investigations is not new. However, impetus to the practical use of such membranes in isolating, concentrating, and culturing microorganisms from various liquid or gaseous media has only recently been provided.† Goetz, of the California Institute of Technology, is credited with improvements on earlier, European rototypes, resulting in the development of commercially available filter membranes of uniform quality, adaptable for this purpose.<sup>2</sup>

Subsequent research by Goetz and his associates;<sup>2,5</sup> by Kabler, Clark, *et al.*, at the Robert A. Taft Sanitary Engineering Center of the Public Health Service, in Cincinnati;<sup>6-9</sup> by Orlando, Bolduan, and associates, at the U. S. Army Chemical Corps Biological Laboratories at Camp Detrick, Maryland;<sup>10,31</sup> and by several others, has resulted in application of the membrane-filter‡ (MF) technic to varied assay problems in sanitary and medical biology. It is now employed to supplement or replace certain conventional analyses, and represents

an especially useful means of concentrating microorganisms even from extremely dilute aqueous suspensions.

## FILTER MEMBRANES

The membranes most commonly employed for bacteriological examinations are about 150  $\mu$  thick (0.1 mm.), consisting of a chemically neutral, wet-dry stable gel of complex cellulose ester polymers with a porosity of about 80 to 85 percent. The pores are unusually uniform in shape and size, averaging from 0.005  $\mu$  to 0.7  $\mu$ , depending on their use. In section, they resemble a truncated cone or funnel, with the axis normal to the plane surface of the membrane, and with the small diameter at the inlet (or upstream) side. This permits a high flow-rate under relatively low hydraulic head, and minimizes cross-diffusion and spreading of the retained colonies. Membranes can be sterilized by (a) autoclaving, (b) exposure to ethylene oxide vapor, ultraviolet radiation, or high voltage, or (c) chemical means. They cannot be sterilized by dry heat, nor is boiling recommended, since this tends to make them brittle.<sup>2,6,11</sup>

Both domestic and European membranes are procurable commercially in the United States, in sterile condition or packaged in bulk, and in various sizes (effective surface area) and porosities. The average effective pore size used for retention of waterborne pathogens, coliforms, and other enteric bacteria is approximately 0.7 $\mu$ . Dyed membranes are available for examinations where high visual contrast is essential. Such membranes can be used for concentrating and detecting fluorescent particles, because the filter mem-

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† During World War II, after laboratory facilities in Hamburg had been destroyed by bombing, and due to the scarcity of agar throughout Germany, the Zigmondy filter was used in the conduct of routine water analyses.<sup>1</sup>

‡ Also referred to as "molecular filter" and, commercially, "Millipore Filter" and "Ultra Filter."



FIG. 1. Basic elements of filter assembly—operator aseptically removing membrane from support.

brane presents a nonfluorescing field under ultraviolet light.

Membranes are soluble in ketones, such as acetone. Thus, when in solution with the retained materials dispersed therein, they can be used in electron microscopy or spectroscopy. This provides an especially useful means for recovering and analyzing particulates.

#### FILTER APPARATUS

The basic elements of the filter apparatus (see fig. 1) are (1) a funneling device (pyrex, porcelain, or stainless steel) to hold the sample, (2) a porous support for the membrane, (3) a filtrate collection container, and (4) a source of vacuum or positive pressure. Sterilization of the vital surfaces of the

filter assembly can be achieved satisfactorily with hot air, a steam autoclave, formaldehyde produced by incomplete combustion of methanol, or (under field conditions) an open alcohol flame or by immersion in boiling water.<sup>2,9,11</sup>

#### SAMPLE FILTRATION

Basically, for bacteriological assay work, the procedure entails aseptic filtration of the sample (depositing the organisms on the sterile membrane surface) and subsequent surface growth of the retained organisms. The membrane becomes a substrate which conveys a suitable liquid or semi-liquid nutrient (the pores act as capillaries) to the deposited organisms, permitting their growth *in situ*. The choice of membrane (i.e., porosity and effective surface area), nutrient(s) concentration, incubation temperature, and duration of incubation is dependent on the particular purpose for which the test is employed.

Filtration (concentration) of the sample is greatly facilitated when a differential pressure across the membrane is provided, the rate of filtration varying, directly with the pressure up to the fracture point (above 700 mm. Hg. vacuum), and inversely with the amount and kind of particulate matter suspended in the vehicle. Laboratory filtration is best accomplished with an electric vacuum pump or a water-actuated aspirator to produce the necessary pressure reduction in the filtrate collection container. In the field, a portable hand pump, a rubber aspirator bulb, or a hand-operated bicycle pump with the leathers reversed can be used.

#### INCUBATION

Incubation of inoculated membranes (in suitable culturing containers) must be done in a highly humidified environment, in order to prevent dehydration of the small amount (1.8 ml.) of nutrient impregnated in the absorbent-paper pad upon which the membrane is placed. Generally temperatures of incubation are not different from conventional procedures, but incubation periods are much shorter for many species of enteric

bacteria, pathogens, and fungi.<sup>10,39</sup>

Optimum incubation conditions are more readily obtainable in the laboratory with a thermostatically-controlled waterbath than with the more conventional hot air, but the latter can be satisfactorily adapted, with precautions to prevent evaporation of the nutrient and drying of the membrane. This can be achieved either by sealing the culture container with a pliable, moisture-proof, plastic film, or by placing the open, inverted containers on a hydrating towel (and covering) in a suitable tray.

Outside the laboratory, incubation can be accomplished by using a portable incubator or by immersion of the watertight, culturing container in a wide-mouthed, constant-temperature, vacuum bottle.<sup>39</sup> Under certain emergency conditions, an unconventional technic of incubation by body heat might be utilized. For this purpose, an assembly (see fig. 2) has been tested by the author,<sup>40</sup> consisting of a sleeveless, vestlike garment, which is adaptable to practically any size of torso and worn in direct contact with the body for maximum effectiveness. The inoculated membrane is rolled onto a nutrient-impregnated pad in a tightly sealed container, and inserted vertically in one of the pouches of the garment, so that the bottom of the container (thus, the nutrient pad and membrane) is closest to the body and separated from the skin only by the thin lining of the garment. Where culturing is optimum between about 33° C. and 37° C., this method yields results comparable to those obtained by more conventional means.

It is possible, at any point in the growth cycle, to transfer a membrane, with its developing colonies, to other nutrient media (liquid or solid) for differential analysis, as in a recommended method for detection of coliforms in water and sewage.<sup>4,7</sup> In this instance, after preliminary incubation on an enrichment medium, the membrane is physically transferred to a pad impregnated with a selected inhibitory, differentiating Endo medium, and incubation is continued.

#### OBSERVATIONS

After culturing has proceeded to the optimum range for detection or quantitative evaluation of the particular species of organism tested, the colonies may be counted or observed. A 10x-15x steriomicroscope and artificial illumination facilitate this evaluation. Direct microscopy (preferably with phase contrast microscope) is possible, since the filter membrane can be made transparent to transmitted light in a medium, such as immersion oil, cedarwood, or other special oils having approximately the same refractive index as the filter membrane.<sup>16</sup> If enumeration or identification must be delayed, colonies may be preserved with formaldehyde vapor, drying, freezing or other means.

Colonies may be isolated in pure culture or picked from the membrane surface and subcultured onto other appropriate media for identification or classification.

#### PRESERVATION OF RECORDS

The membrane, with its colonies, may be easily preserved. Saturation with a 10 to



FIG. 2. Garment for incubation of inoculated filters by body heat of wearer.

15 percent aqueous solution of glycerol and subsequent air-drying reduce the brittleness of the dried membrane. With pathogenic colonies the assembly should be sterilized, after drying, with a solution of formalin or 5 to 10 percent boric acid, and redried. Thereafter, the membranes may be mounted or otherwise preserved for future reference.<sup>11</sup>

#### USE OF MF IN WATER ANALYSES

Of special significance to waterworks operators and public health engineers is the application of the MF technic to the determination of the sanitary quality of water. The fermentation-tube test for coliform identification has been recognized for many years as the most practical technique for this evaluation. Extensive research has been undertaken in comparing MF results with MPN's of coliforms obtained in the conventional manner.<sup>12, 25</sup> Numerous MF selective media and test modifications have been proposed and are currently being evaluated for MF coliform detection and type differentiation from other bacterial flora which are common inhabitants of natural and treated waters.<sup>8-10, 15, 17</sup> Most of these methods involve physical transfer of the membrane to a highly selective nutrient medium after preliminary incubation with an enrichment medium, in order to obtain maximum coliform recovery. Other techniques, such as that proposed by Hajna and Damon,<sup>14</sup> do not require preliminary incubation or enrichment.

Particularly adaptable to field culturing is a dehydrated nutrient schedule reported by Goetz,<sup>3</sup> which permits identification or differentiation of the coli-aerogenes group without the necessity of transfer procedures. This schedule consists of two dehydrated, sterile pads—one impregnated with an enrichment nutrient, and the other with an inhibitory, differentiating medium. Upon rehydration with sterile water, the enrichment nutrient diffuses upward through the pores, thereby providing an immediate stimulus for all

organisms deposited on the filter surface. Simultaneously, the inhibitory medium begins to travel upward, reaching the organisms at about the time they have passed into the active-growth stage.

Colonies of most waterborne bacteria of sanitary significance reach the characteristic growth stage after about 16 to 18 hours of incubation, and may be counted at that time. The estimates obtained are approximately comparable to those from 30-tube MPN fermentation tests, and are obtainable in about one-fourth of the time required for the latter.

Past investigations have established the practicability of the MF method, as compared to those in current use, and imply a substantial reduction in time, expense, materials, equipment, space, and labor requirements. Moreover, it now appears that with the MF technic, results are at least comparable in accuracy and duplicability with those that have been possible for tube tests applied within the practical limits recognized by regulatory authorities. No less important, the technique will make possible quality control of individual and fringe-area water supplies necessarily neglected in the past.<sup>13</sup>

Collet, *et al.*,<sup>18</sup> report the isolation of *S. typhosa*, bacteriophage type A, from a dug well in an epidemic-typhoid area, using domestic membranes of the type described and a commercial bismuth-sulfite broth especially prepared for MF work. Routine bacteriological examination demonstrated coliform contamination of the well involved. Positive identification of *Salmonella* was obtained after 40-hour incubation at 37° C.

Goldin, *et al.*,<sup>19</sup> successfully employed the MF as an adjunct in detection of low-level alpha and beta radioactivity in water and certain radioactive wastes. The MF was used to concentrate large volumes of samples which otherwise could not be accurately evaluated for emission in the customary manner (i.e., evaporation and counting).

## USE OF MF IN AEROSOL ANALYSES

The utility of the MF is not restricted to the analysis of liquids. MF principles, with slight modifications in technic and materials, are readily adaptable for assays of indoor and outdoor atmospheric contaminants, particulate and microbiological. Limited success has been reported in preserving the viability of organisms removed from air by MF filtration, especially those species that are not highly sensitive to airborne conditions.<sup>5</sup> Considerable evaluation remains to be undertaken in this facet of aerosol application.

In an epidemiological investigation of an epidemic of histoplasmosis, Ibach and associates<sup>20</sup> employed MF's successfully for isolating *Histoplasma capsulatum* from air. Portable Venturi-scrubber air-samplers were used, the organisms in the dispersing liquid in which the air was washed being concentrated on a MF and subsequently injected into white mice.

Gordon, *et al.*,<sup>21</sup> report a similar application in industrial air-sampling for anthrax. Material entrapped on the MF was washed off with a small quantity of nutrient broth, and then was streaked on agar plates and inoculated into mice for customary examinations. Such applications provide a convenient means for concentrating large volumes of liquid necessitated by the use of certain aerosol samplers, such as those that might be used in defense against biological warfare.

Another unique physical property of domestic membranes is that the retained particles (even those smaller than the effective pore size) remain directly on or within 10 to 50  $\mu$  of the inlet surface. This appears to be due, largely, to the fact that the filter readily acquires a high electrostatic charge when air is forced through it.<sup>2, 23</sup> Thus, particles are deposited and preserved in essentially the same size, shape, and state of aggregation in which they existed when suspended in a gaseous or liquid medium. This makes the MF a particularly useful device for collecting and concentrating samples

of airborne dust and particulates. Deposited particles can easily be transferred to a prepared, electron-microscope, specimen screen for photographing and measurement of particle-size distribution after projection.<sup>22, 23</sup>

As for water and waste analyses, the MF is adaptable to detection and estimation of alpha emitters with radiation-counting equipment. Molecular membranes have an advantage over other filter materials: emission from particles penetrating denser media is partially absorbed by the filter material and other particles; this condition is minimized when MF's are used, because of the surface retention phenomenon. After emission has been determined, the material may be subjected to micro-balance determinations, optical or electron microscopy, surface photometry, or concentration for chemical analysis by dissolving the membrane with a selective solvent.

## OTHER USES OF MF

Goldberg, *et al.*,<sup>24</sup> have utilized the MF technic extensively for assay of microplankton, and regarded this technique as superior to that of quantitative determinations obtained by gravimetric or centrifugal concentration. (Membranes were used to remove contaminants from sample-fixing reagents.) These investigators also employed the MF for studying the organic and inorganic fractions of suspended particles in coastal marine waters by microchemical analyses, and in studies of photosynthetic productivity by phytoplankton cells by a radioassay of  $C^{14}$  absorbed by cells retained on the membrane after filtration.

In recent and continuing studies by Kelly and associates<sup>25</sup> it has been concluded that the MF is a reliable tool for determining coliform-density values (as a measure of sanitary quality) of shellfish-growing waters, provided care is exercised in establishing proper sample sizes in relation to sample turbidity. Exploratory investigations on the relationship between sample turbidity and

coliform recovery are now being undertaken.<sup>26, 27</sup> Oppenheimer<sup>28</sup> found the technic useful for sampling marine psychrophilic bacteria and obtained good results in cultivation of anaerobes, including fastidious sulfate-reducing organisms. The simplicity of analytical and culture procedures makes the technic particularly adaptable to bacteriological testing at sea.

Barber, *et al.*,<sup>29</sup> used the MF to evaluate the effectiveness of sanitizing procedures for in-place cleaning and germicidal treatment of milk conduits, bottles, flavorings, and other appurtenances associated with dairy-industry sanitation, including aerosol assay of enclosed areas and aeration systems of sanitary significance. The sanitary quality of milk and other dairy products can satisfactorily be determined by the MF technique; they, generally, require dilution of 1:10 and filtration in 1 ml. amounts.

Grobstein<sup>30</sup> suggested application of the MF technic in studies of embryonic induction and in characterizing diffusible and non-diffusible components of inductive processes. (The membrane is used as a physical barrier to distinguish effects due to direct cellular contact from those due to diffusion.) This potential application is based on successful experimental studies of epitheliomesenchymal interaction in cultured submandibular and metanephric mouse embryo rudiments.

An application of the MF to diagnosis of *Brucella* infections has been developed.<sup>41</sup> The technic results in quantitative recovery of extracellular *Brucella* cells in blood (as colonies visible within 3 to 4 days) on a MF culture agar. This method eliminates the influence of antibrucellar substances common to many liquid nutrients and minimizes population changes that contribute to the development of variants differing from the type originally present *in vivo*. Observations with infected rabbits suggest that the MF technic appears also to permit quantitative estimation of the extent of bacteremia.

Some additional investigative activities in which domestic membrane filters are being

used or have been proposed include:

Appraisal and counter-defense against enemy BW and RW attack (hydrosols or aerosols).<sup>31, 32</sup>

Research on the efficiency of disinfectants, detergent germicides and antiseptics, including their procedures of use.<sup>33, 35</sup>

Detection and isolation of *Mycobacterium tuberculosis* from spinal fluid, sputum, urine, and other infectious materials.<sup>36, 37</sup>

Separation of colloidal suspension from solution for measurement of ionic activities in colloidal suspensions.<sup>38</sup>

Analysis of sewage and other liquid wastes.<sup>4, 16</sup>

Bacterial physiology and nutrition studies, including research on bacterial dissociation.

Screening and assaying of antibiotics, and filtration or sterilization of certain pharmaceuticals, culture media, and other liquids or gases.

Appraising susceptibility to drugs and antibiotics of pathogens isolated from clinical cases.

Filtration of pyrogens, sera, enzymes, ferments, toxins, antitoxins, proteins, and other colloidal suspensions.

Essentially, all of these encompass the basic technic of concentration and methodology reported herein. Undoubtedly other applications will be developed, which will contribute to a more satisfactory evaluation of many and varied environmental and clinical factors of hygienic importance.

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## Late News Items

The following news items were received too late for classification under the Association Notes:

Edward A. Cushing, M.D. has been appointed as Deputy Assistant Secretary of Defense (Health and Medical).

Colonel Sheldon S. Brownnton, USAF (MC), who has been Executive Assistant to Doctor Frank B. Berry, Assistant Secretary of Defense (Health and Medical) has taken the position of Director for Planning and Liaison in Doctor Berry's office, relieving Rear Admiral O. B. Morrison, MC, USN, who has been designated as the Commanding Officer of the U. S. Naval Hospital,

Portsmouth, Virginia.

The new deputy Surgeon General of the Navy is Rear Admiral Bruce E. Bradley, former Commanding Officer of the U. S. Naval Hospital, Oakland, California. This latter position will be filled by Rear Admiral John Q. Owsley.

Rear Admiral Ralph W. Malone, DC, USN, has been appointed as Assistant Chief for Dentistry and Chief of the Dental Division Bureau of Medicine and Surgery, vice Rear Admiral Daniel W. Ryan, DC, USN, who becomes Inspector, Naval Dental Activities, Pacific Coast with station at San Francisco.

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# Medical Department Participation in the Vehicular Motor Accident Program

By

CAPTAIN G. B. RIBBLE, M.C., USN\*

*The problem of injuries and deaths due to automobile accidents in the Military Services is discussed as a reflection of a National problem. The part the Medical Department of the local activity may assume in promoting an effective automobile accident reduction program which will insure definite and positive results is explained.*

THE Navy is very proud of accident prevention programs in the fields of aircraft, industry, and Government-owned vehicle. However, the source of greatest devastation, the privately-owned motor vehicle, continues but slightly abated.

The problem of motor vehicle accidents in the Military Service is merely a reflection of a national calamity repeated every single day of the year during which there is one death every fourteen minutes and an injury every thirty seconds due to auto accidents. Statistics for 1954, both national and in the Armed Services, show a continuing and ever-increasing loss of life, limb and financial waste. However, it is true that the accident rate per million miles driven has steadily decreased. This is the only cheerful note in the entire picture. American motorists are now driving more billions of miles with fewer deaths than at any time in our history. Indeed, it is said that if the mileage death rate of 1937 had prevailed in 1950, there would have been 67,000 traffic deaths instead of 35,000 in the latter year. In most every case of accident, a traffic violation is committed.

In an analysis of traffic accident causation for 1953, the National Safety Council reports the following facts:

	Per cent
Were caused by excessive speed .....	28
Involved a drinking driver or pedestrian ...	22
Were under adverse weather conditions ....	16

\* Marine Corps, Air Station, Cherry Point, N.C.

NOTE: The opinions expressed herein are those of the writer and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

Resulted from an obstruction of vision ...	15
Were caused through a defective vehicle ..	7
Were caused by physical defect of driver or pedestrian .....	5.5

Turning our attention more specifically to the problem at our military installations throughout the Nation, an equally serious situation is proclaimed from the headlines of the local station newspapers:

"Six men killed in Illinois wreck—Trip home ends in tragedy as car hits truck!"

Beneath the headline is a picture of a wreck of a private automobile with a serviceman lying on the ground dressed in civilian clothes, obviously on leave or liberty. There he lies, a symbol of our ineffectiveness in protecting our military personnel from this Frankenstein product of our Machine Age.

Let us look at the statistics in the Navy and Marine Corps. In 1953 the total number of deaths totalled 630, with 8,488 admissions to the sick list. An average of 46 days was required for their treatment. 88% of the accidents with injuries and deaths occurred on leave or liberty, and in four out of five cases, in a privately-owned passenger vehicle. Accidents happened mostly on holidays and the weekends, in the age group under 30. About twice the number of deaths were caused from accidents than from all diseases during the year.

Here was the problem in 1952 at a typical Naval Air Station having a military population of approximately 15,000:

1. Total personnel involved in accidents ..	1,153
2. Total auto accidents .....	407
3. Total accidents resulting in casualties ..	160
4. Total personnel killed or injured .....	297
5. Total deaths .....	15

These same figures might be used as a proportionate estimate of the situation at any other similar military activity. An analysis of the accident casualties will show a greater proportion in the younger age groups. Analyzing the accidents will show the most common type to be running off the road; the second, running into another car from behind. Most frequent causes will be excessive speed, followed by inattention, following too closely, improper passing, failing to yield right of way, dozing, etc., in diminishing order of frequency. An analysis by the day of the week will show the majority of accidents occurring over the weekend during the period of the greatest amount of travel. In addition, the greater proportion of accidents occur at night. A major proportion of the accidents may be found occurring on the main highways within a 20-mile radius of the station, but this may be modified by local geographical location. Major causes of injuries may be speeding, inattention, and dozing, in that order. The greatest rate for injuries and deaths per accident will generally be found in sleeping and dozing, driving while intoxicated, and speeding, in that order. It can be seen, then, that although the most accidents are caused by speeding, it does not cause the highest rate of injuries. It was difficult to determine positively the exact importance of alcohol as a factor in causing accidents, but it is estimated that drinking was a contributing factor in three-fourths of accidents in which casualties resulted.

In February, 1952, the Chief of Naval Air Technical Training, at the Naval Air Station, Memphis, Tennessee, established a permanent board of officers, now generally known as a "Safe Driving Council," and charged them with the responsibility of studying the problem of motor vehicle accident prevention in privately-owned vehicles and making recommendations to the Commanding Officer to reduce them. In addition, the Safe Driving Council was authorized to proceed with a program of education, using all media designed to accomplish the objectives of the program—audio and visual.

In general, the problem was attacked on four fronts, mainly: education, enforcement, traffic engineering, and administrative action. Following is a short discussion of approaches used in each field:

#### EDUCATION

Education is a most important deterrent to accidents generally. Effort is made to develop an attitude of "safety consciousness," as opposed to an attitude of recklessness and willingness to take chances. There is adequate evidence to support the contention that attitudes can be changed, and education is, perhaps, the most effective instrument. Following are some of the forms of education which were used at the Naval Air Station, Memphis, in promoting the safety program:

*The indoctrination of incoming drafts of trainees.* Approximately 250 men per week entered training at the Naval Air Station, Memphis, Tennessee, in 1951-1953. Each one of these men received a period of general indoctrination, which provided opportunity for specific indoctrination in the automobile accident program. This consisted of a talk by the Senior Medical Officer, illustrated by slides showing local accident wrecks. Causes of the accidents and seriousness of the injuries and deaths resulting were stressed with emphasis on the means by which they could have been prevented. It is felt that this approach, given at the time of the student's first arrival aboard the station, had a most important effect on the reduction which was obtained subsequent to its inauguration. An additional benefit exists, of course, in the fact that the newly arrived man remains aboard the station for the maximum length of time so that the impression made on him continues to be of value in the local program.

*Automobile movie "shorts"* on automobile safety, strip films, recorded music with safety admonitions, and slides, shown before a feature recreational film of the station movie, were utilized. Such films are generally available through the National Safety Council. Preparation of recorded music with

safety admonitions is accomplished by use of a tape recorder and can be done locally. This method was used also to admonish personnel driving out the main gate at the close of working hours by loud speaker.

*Posters.* Most of the posters used were provided by the National Safety Council, and were displayed on bulletin boards throughout the Station.

*Radio Programs.* Weekly radio programs over the local Navy radio network, WTRI, were presented on Sunday evenings. These consisted of musical programs interspersed with interviews or talks intended to develop an attitude of safety consciousness. At times an automobile accident victim was a guest on the program. Daily radio programs generally were freely interspersed with safety slogans supplied by the National Safety Council and altered to fit local conditions. Radio features using drama to highlight the causes and cures of accidents were used experimentally.

*Use of pledge cards and club cards* was made to encourage identification with the program.

*The station newspaper, "Bluejacket,"* strongly supported the automobile safety program through editorials and news stories concerning accidents and traffic violations. Accounts of accidents occurring were presented forcefully, in such a manner as to bring out the causes and to emphasize one preventive action which could have been taken in each individual case. Another important influence brought to bear on the reader was the influence of a comic strip character drawn by a member of the civilian staff of the Naval Air Technical Training Command (Mr. Fred Baker, Staff Artist, Naval Air Technical Training Command, NAS, Memphis, Tenn.). The character, known as "Jasper Catastropher," symbolized the stupid and careless driver responsible for most accidents. Mass participation in the weekly illustration of his mishaps was encouraged by soliciting suggestions from the readers.

*A mass use of bumper strips* carrying a reference to the cartoon character was made

during the Christmas holiday season to promote safe driving. A total of 8,000 bumper strips were pasted on front bumpers of civilian vehicles aboard the station bearing the question, "R U A Jasper?" Not one single serious accident occurred during this particular holiday season.

*The promulgation of the safety educational portion of the program* was carried to the men by official directive from the Commanding Officers of the various units based at Memphis under the Technical Training Command. Brief daily discussions on safe driving practices were held by instructors and mustering Petty Officers. Thus the promulgation was given official recognition and enhanced prestige.

#### ENFORCEMENT

Enforcement is the most obvious approach to automobile safety and undoubtedly capable of producing the most rapid results. However, the permanency of this method depends on continued application, and it is doubtful if any considerable attitude of driver safety consciousness is retained when the threat of punishment is removed. A patrol on the main highways approaching the station during liberty hours was inaugurated, in coordination with civilian highway patrol vehicles, in a joint effort to maintain observance of traffic laws. There is no doubt that this measure was of considerable effectiveness. A close liaison was maintained with the State and County traffic authorities in order to exert a coordinated effort in enforcement problems with the local civilian agencies. Reports of all traffic violations coming to the knowledge of enforcement agencies in the community were requested to be forwarded to the local station authorities. In this way proper disciplinary action could be taken locally when required, and note of additional accidents added to the compilation of statistics.

#### ENGINEERING

Under this approach to the problem, one of the first items was the maintenance of "pin" maps of the location of accidents to

discover specific danger areas. Action of a specific nature was then possible.

A number of recommendations concerning traffic engineering, such as stop signs, traffic lights, traffic lanes, lining of pavement, routing of traffic, etc., were made by the Safe Driving Council. In general, the possibilities of making any immediate extensive improvements through traffic engineering is doubtful due to the costs involved. However, it must not be neglected in long range planning.

#### ADMINISTRATIVE ACTION

Military organizations in general have a special control over the individuals under their command which permits reduction of accidents by the simple expedient of restriction of automobile travel. This may be obtained by prohibition of automobiles on the station, by restriction of liberty, or by substitution of other means of transportation considered safer than travel by the automobile. All are examples of approach to accident control through administrative action.

Perhaps the most important step in organizing a safety program is the establishment of the Safe Driving Council. The council should be composed of individuals aboard the station having an interest in automobile safety. Naturally, the Medical Officer represents the Commanding Officer's interest in conservation of his personnel and is one of the key members. It is also advisable to have as members officers representing the departments of safety engineering, public information, security, administrative officer of the command, and transportation, as well as any specially trained and qualified individuals who may be available, such as psychologists or statisticians. Representatives of the enlisted body should also be members as these men represent the principal group of individuals on whom control measures are being focused. The Council functions as a group discussion unit, and, to some extent, as an executive body within limits prescribed by the Commanding Officer. The duties of the

various members have been outlined in Reference 12.

#### ROLE OF STATISTICS

One of the important steps in determining the fields of accident control exists in assembling statistics on information which the safety program needs for efficient operation. Statistics provide facts concerning the number of accidents at various locations, the cost of accidents, their causes and the number of resulting casualties. These facts play an important part in the formulation of sound accident prevention policies. This information helps to state the automobile safety problem in specific terms and frequently suggests remedial action. Statistics also play a major role in the evaluation of the effectiveness of the automobile safety program, particularly applicable in this day where cost consciousness has received such emphasis. Of course, the most important cost of all, the cost in lives and the cost of disabling injuries, is difficult to measure. Where statistical analysis is not possible to a full degree, controlling action may be taken on the basis of statistics available at commands which have a similar pattern of personnel and geographic location.

An accident reduction program based on principles outlined in preceding paragraphs was effective at the Naval Air Station, Memphis, in reducing accidents in 1952 as compared to 1951 by 72, casualties by 52, and material costs by \$47,000. A similar reduction was effected in 1953 as compared with 1952 through continuation of the safety program. The reader is referred to Reference 12 for more detailed information on savings in lives and property which resulted.

Let us examine the particular field of action available to a Medical Officer attached to one of our Naval, Marine, or other similar military bases. In dealing with the problem of motor vehicle accidents, we are faced with certain facts as follows:

1. The automobile is the Nation's greatest killer.
2. The privately-owned automobile is the

military establishment's greatest killer.

3. Automobile accidents are preventable in that they can be reduced by proper control measures.

4. The military forces lead in the reduction of injury and death in industrial accidents, venereal disease, and other preventable conditions.

5. Why not apply preventative measures to this greatest problem of all to the same degree?

6. The mission of all military medical departments is to exert all effort "to keep as many men as many guns as many days as possible."

It is said that safety is everyone's business. Surely the medical man and the Medical Department has as great a concern as any other department in the reduction of injuries and deaths due to automobile accidents. In the final analysis, it is in the field of education where the greatest permanent reduction in automobile accidents can be obtained. Here the Medical Officer may accept a very important role with his background and experiences in teaching First Aid, Hygiene, and other related medical subjects. There are certain other areas, also, where he has special qualifications which he can best use as a member of the local Safe Driving Council.

1. *The study of presence of accident-prone factors in the local environment.* This should include, not only study of actual accident proneness of individuals, but consideration of the factors present in life aboard the command which predispose to automobile accidents, such as geographical location, lack of recreational facilities, abuse of liberty, drinking while driving, undertaking excessively long trips with attendant fatigue, or a general attitude of carelessness, or lack of sufficient knowledge of the danger involved in inexperienced operation of a motor vehicle.

2. *Physical standards.* Under this category is included a check on the adequacy of the physical standards for driving in a particular area, as well as any physical or mental factors which are predisposing to in-

volvement in accidents related to duty performed and other related factors. A Medical Officer is best able to judge whether or not accidents are being increased by exhausting mental or physical factors in their working or recreational environment.

3. *The problem of the drinking driver,* problem of dozing while driving, mental or emotional instability, are all within the special interest of the Medical Officer. He is in the most favorable position to assemble data on such factors as the relation between blood alcohol level as shown by Bogan's test or breathing test, and the incidence of accidents and severity of injuries. Such information as obtained may be useful in the educational program.

4. *The Medical Officer* is the one person who has first hand knowledge of every auto accident casualty. He is also best qualified to study the type and degree of injuries which result, and suggest possible ways in which their severity may be minimized.

The entire problem is so oriented around the Medical Department that it is difficult to see how personnel of any other department could be more concerned. A particular field in which the Medical Officer is exceptionally well qualified is in that of talking to the men and influencing them, through lectures and admonition, towards an attitude of safety consciousness. In past years, Medical Officers have devoted long hours to instruction in First Aid, to the prevention of Venereal Disease, and on Personal Hygiene—all time well spent. There is no other field of endeavor in which such savings in life, limb, and material costs can be obtained as in effort expended to reduce automobile accidents. Injuries and deaths from any cause are a medical problem. It has been proved that the same methods of accident control used so successfully in aviation, in industrial medicine, and in prevention of venereal disease apply equally to those accidents resulting from improper operation of the motor vehicle. In all these fields the Medical Officer plays an important role. In addition, the Medical Officer is best able to stimulate other per-

sonnel in the command to the realization of the terrific waste from this cause, and to inject, create, and inspire in them an attitude of optimism and confidence in the favorable response to preventive measures, principally through the avenue of education.

#### SUMMARY

The motor vehicle accident problem as it exists in the military services, and particularly in the Navy, has been outlined. Experience covering a period of two years in achieving a definite reduction in the accident rate has been cited.

Motor vehicle accidents present the same problem to the Command and to the Medical Department as do common accidents, industrial accidents, or venereal disease, and results are obtained through education, enforcement, and manipulation of the external environment.

The Medical Department is a key unit in the promotion of an automobile accident reduction program. The Medical Officer is charged by regulation as being the Commanding Officer's representative in protecting the health of the command. There is no other department so closely involved in the problem of motor vehicle accidents. While traffic accident prevention is a "command" problem, the Medical Officer should assume a principal responsibility. The Medical Officer should never regard his

qualifications as so specialized that he can shrug the responsibility of death and injury from any cause.

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# Status of the Medical Service Corps of the Navy, Present and Future\*

By

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WE ARE grateful to the Association of Military Surgeons for the opportunity to meet here in this forum with our opposite numbers of the Army and Air Force. We in the Navy have much in common with them. There are also many differences in organization and functions, which grow out of the basic differences in the three parent services. A knowledge of this fact is necessary if we are to have a complete understanding of our operations within the Medical Departments of the three services.

Although the Medical Service Corps of each of the three services stem from the Army-Navy Medical Services Corps Act of 1947, each is governed to a considerable extent by the provisions of the Officer Personnel Act of 1947. It is this latter Act which establishes rank structure and promotion procedure, which are designed to place all officers on common ground within their services, but not necessarily on common ground with their contemporaries of their sister services. We sometimes lose sight of that doctrine and imply that there is something wrong with the Medical Services Corps Act because it does not provide equal status for its members in each service. Without challenging the desirability of having such equal status for those of us in the Navy, I merely remind you that your quarrel, if any, is with the application of the running mate principle, and not with the legislation which established our Corps.

Any discussion of the "Status of the Medi-

cal Service Corps of the Navy, Present and Future," which is the title of this paper, must, of course, start off with a presentation of its strength and composition. We have now roughly 1000 officers, organized in six sections: Supply and Administration, Medical Allied Sciences, Pharmacy, Optometry, Podiatry, and a Women's Specialist Section. In numerical strength these sections range from 684 in Supply and Administration to 5 in Podiatry.

To infer that by classifying these officers by categories, in sections, we have sorted them out by professional specialty is to indulge in a considerable degree of oversimplification. For example in the Medical Allied Science section, 173 officers are qualified in some thirty odd scientific specialties. These officers are highly qualified professionally but there are wide variations in their fields of primary interest, so that one cannot say that their association together in an Allied Science section unites them by a common bond. The other sections of the Corps present similar groupings of divergent specialties. In the Women's Specialist Section, we find dietitians, physical therapists and occupational therapists, and in the Supply and Administration section, medical department administrators, dental department administrators, and officers qualified in environmental sanitation.

Naturally the complexities involved in the administration of any group of officers representing so many professional and administrative specialties are great. While all are members of one Corps their interests and responsibilities are so varied that they tend to restrict their operations too closely within their individual spheres of activity. Not only do the professional people and the administrators create intangible barriers around

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their activities but also within sections there is much separate boxing up of physicists, bacteriologists, entomologists, psychologists and so on. Perhaps it is time for those of us who may have been too greatly concerned with only our own respective sections of the Corps to back off a bit and take a look at the needs of the Corps as a whole. Where can we find an objective that will be the same for all, and how can we develop a driving force that will take us all to that objective?

I think we need only to look around us to realize that the common bond that should unite all of us is our status as commissioned officers in the naval service. That status, and an understanding of the responsibilities that go with it, must take precedence over individual professional or administrative accomplishment. Then our objective is a direct one—to become good officers. And the driving force which can take us to that objective is a career pattern which will give us stature in the naval service, qualify us militarily for promotions as we attain eligibility for them, and which will give all of our officers an opportunity to best serve the Medical Department of the Navy. Some of you may challenge my ranking military fitness as an officer as the number one qualification for a commission in the Medical Service Corps, instead of listing first professional competence. I am prepared to defend my position. However, I do not expect that any of you will take issue with my premise that we are all united in a common interest in pay, promotion, and retirement benefits. All of those will come to us not because of professional attainments, important as those are, but because of our position as naval officers, and will come to us in exactly the same manner as to all other officers who gain these benefits. So it is important to learn how we go about earning this position in the sun.

First, I assure you that I have the greatest respect for professional knowledge, whether it be held in fields of science, liberal arts or administration. The possession of a high degree of professional knowledge, and the capacity to acquire more, will take one far in many of life's pursuits. But that alone

will not take one far in the Navy. If any of you doubt this, you have only to examine carefully a blank fitness report. When you examine it remember that this fitness report is the only means provided to evaluate officer performance officially for the record. And remember that this is a command evaluation, related entirely to your fitness as an officer, and comparing your fitness with that of other officers of your grade and length of service.

You will find that professional knowledge appears high on the list of qualities on which an officer is graded. There are five levels of performance in which an officer can be placed. At every level professional knowledge is related to the officer's duty assignments—not how much does he know, but how much does he know about his job.

As we go on down the columns of the fitness report, we see that the other qualities measured are cooperation, judgment, leadership, promotion potential and management effectiveness. Which of these qualities are most important? I think the only guide we have is the awareness that all are essential to the well-rounded officer. All of these descriptions make up the set of yardsticks by which our fitness as officers is measured. Deficiencies, even slight, in any one of these qualities may be enough to sway a selection board away from an otherwise well qualified officer and toward another.

The point I am trying to stress is that professional knowledge by itself will not make a good officer. He must have it, but he must also have the other qualities that fit him for his commission. Without these qualities, he should not be a commissioned officer. There are many requirements in the naval establishment for individuals possessing exceptional knowledge in certain fields. If this particular knowledge is the only requirement for the job, and there is no need for the individual meeting that requirement to exhibit cooperation, judgment or leadership at the level required of a naval officer perhaps he can best be employed as a civilian, in a grade appropriate to his responsibilities and scholarship. But if he should be an officer, then let him be an officer all the way.

We are fortunate that the Medical Service Corps of the Navy, in all sections, has so many highly qualified officers. Most I feel are good officers. I want all of us to be. Our rank structure is somewhat distorted, but this is a natural consequence in the establishment of a new Corps by the integration of eligibles from other staff corps and from the line. Time will correct this, if we can continue to bring into the Corps each year at the bottom, newly appointed officers, in all sections, in proportion to the established need for each specialty.

There is much misunderstanding of our rank structure. Some administrators think they have been discriminated against because the few senior grades have for so long been held by officers of the Medical Allied Science, Pharmacy and Optometry sections. This is not so. What we have experienced in our Corps is simply the operation of the Navy's philosophy regarding rank. These senior officers attained their lineal position because of qualifications held on original appointment and subsequent service in grade. They were entitled, under policy governing all naval officers, to retain this lineal position when the Corps was established, just as they would have retained it had they transferred to the line, or to other staff corps. Administratively, it would be desirable to have the members of the various sections distributed throughout the grades in the same proportion as their strength in the Corps. This cannot be done now under the running mate principle. It can be achieved in the years to come if our annual increments of newly appointed ensigns are handled properly.

We have a new Corps. As it matures, need for certain legislative changes will develop. We have two such needs now, one concerning strength, and the other membership on selection boards. As you know, our strength is fixed by law at twenty per cent of the strength of the Medical Corps. With the Medical Corps being subjected to sharp reductions, as it is now, and the resulting requirement for Medical Service Corps officers to replace medical officers in certain capacities, the incongruity of the present strength

ratio is apparent. A possible remedy is to tie Medical Service Corps strength to the overall strength of the Navy, instead of to the Medical Corps.

With respect to the composition of selection boards for the promotion of Medical Service Corps officers, the Officer Personnel Act provides that members of our selection boards be medical or line officers. This is because at the time this law was enacted, in 1947, we did not have, nor do we have now, sufficient officers in senior grades to qualify for this important duty. We can expect that when we do have such officers an attempt will be made to amend legislation to provide for representation from our Corps.

We have had fine service support for our training programs. This important function will continue to be emphasized, always bearing in mind that the training must be fitted to needs of the service, and not to individual ambitions. While we are always controlled in this program by the availability of personnel and funds the Bureau's budget objectives have strong support to our needs in the past, and there is no indication that this policy will not continue.

While there are many educational requirements that can be met only by training in civilian universities there is much for an officer to learn in service schools, both those under our own management and those managed by other bureaus, in which we may participate. Our own basic school for administrators, the Naval School of Hospital Administration, is steadily gaining stature in this field. I have as a goal complete accreditation for this course under the standards established by the Association of University Programs in Hospital Administration.

There are other fine service schools which our officers should attend, to prepare them for higher responsibilities as naval officers. For some years we have been sending officers to the Armed Forces Staff College to fit them for joint staff work. So far we have sent only officers of the Supply and Administration section. However, I realize that I cannot tell the scientist that I place military fitness as an officer above mere professional

accomplishment and then deny him the opportunity to enhance his military fitness. Consequently, I feel that this course should not be restricted to members of any one section, but that it should be available to carefully selected members of the Corps, consistent with the needs of the service, without undue emphasis on either administrative or professional background. Further, I hope ultimately to obtain quotas for our officers in the Industrial College of the Armed Forces and in the Naval War College.

The most recent addition to our ranks, and one performing valuable service to the Medical Department, is the Women's Specialist Section. Most of these fine officers are in the fields of occupational and physical therapy. A few are qualified in dietetics. More are needed. These dietitians can make a real contribution to the successful management of a food service operation in a naval hospital.

In summary, we have a new Corps, with the usual problems associated with any such organization. Our composition is complex, and our rank structure is inadequately distributed over the various sections of the Corps. There are widely diversified interests

extending throughout the Corps, and even within sections. The one interest common to us all should be our performance as naval officers, and our objective should be to subordinate individual professional competence in favor of a predominant responsibility to establish ourselves as good officers. Our background of education and experience should be augmented by training designed to improve not only professional and administrative skills, but also directed toward improving our military fitness. It is by recognition of our military fitness that our most tangible rewards will come. Opportunities to attain military fitness must be available to all, through eligibility for training as career officers, despite any existing inconsistencies in professional or administrative background. By such a program, I believe that we can add to our stature in the Navy. Our greatest reward by accomplishment of these objectives would be service recognition of the fact that members of the Medical Service Corps are highly qualified in their specialties, closely integrated as a Corps, but above all, good officers of the naval service.



## **RESERVE MEDICAL OFFICERS WILL RECEIVE CREDIT FOR ATTENDING AERO MEDICAL ASSOCIATION MEETING**

**Hotel Statler, Washington, D.C., March 21-23**

## Data from Patients, Nurses and Doctors on the Needs for Nursing Service

By

FAYE G. ABDELLAH, R.N., USPHS\*

A PATIENT remarked, "Why do the nurses plunge a thermometer in your mouth the first thing in the morning—your eyes aren't even open? Instead, they could say cheerfully, 'Good morning. Time for your thermometer!'" A nurse said, "My patient had to sit on the bedpan 20 minutes because I was the only one on the floor."

These are examples of thousands of statements expressed by hospital personnel and patients, which describe events that contribute to the patient's feeling of well-being.

To determine the basic reasons why hospitals feel they are understaffed, from the viewpoints of the patients, nurses, and doctors, the Public Health Service, in co-operation with the Cleveland Commission on Nursing, has been conducting a study asking hospital personnel and patients to record the events relating to patient care that are satisfactory and those that are unsatisfactory.

The desire for this study arose when a group of nursing and hospital administrators of the Cleveland Commission on Nursing reported that nurses in their hospitals were feeling pressed and short of help. This was perplexing because in these hospitals the average hours of nursing care given each patient were higher than the average for general hospitals in the country as a whole. Some of the same hospitals of Cleveland, had previously conducted management studies and had not found the answer to nurses' feeling of overwork.

The Cleveland Commission on Nursing

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requested the Division of Nursing Resources of the Public Health Service, to develop a tool which hospitals could use to determine what nurses want to do for their patients, yet cannot; to find out what patients would like to have done that is not done; and to find out how often these omissions in nursing care occur. It was hoped that the findings would help hospital and nursing administrators identify the factors, related to nursing service, that affect the morale of patients and staff.

### APPROACH TO PROBLEM

The study was undertaken in three phases. *The first phase* was exploratory, to determine what type of instrument would be useful in getting at the problem. Three general hospitals, members of the Cleveland Commission, invited the Division of Nursing Resources to undertake this study in their hospitals. A team from this Division, consisting of a nurse, a psychologist, and a statistician, was assigned to the study. The study extended over one week in each of the three hospitals. The nurse and the psychologist conducted staff orientation conferences, selected the hospital sample, conducted the depth interviews, and supervised the distribution of the forms.

A sample of 100 patients and all nursing and medical personnel in each hospital were asked to participate in the study. In each hospital, ten of the 100 patients were selected to participate in depth or intensive interviews each day for a 5-day period, from the time of their admission. Thirty patients in each hospital participated in group interviews. The other 60 patients in each hospital were asked to record in their own words the events which happened to them during the day that were satisfactory and unsatisfactory. Patients recorded events four times a day for a week,

or until discharged, whichever came sooner.

Nursing and medical personnel were also asked to complete a similar open-ended questionnaire. They were also asked to identify the patient involved (by code number), if the patient they observed was one participating in the study.

The open-ended questionnaires provided verbatim statements of the reactions of patients, nurses, and doctors to the nursing care being provided. Administering this type of questionnaire presented many problems, among which were the classification and tabulation of responses.

Staff orientation conferences were scheduled in advance so that everyone knew that the study was under way, and thus their cooperation was secured. Head nurses and student nurses oriented the patients to the study, distributed the forms and collected them each day.

Both patients and personnel found recording four times a day for a five-day period very tiring. It was evident from the exploratory study that the period for recording would have to be shortened and the amount of required writing reduced.

A first step in the analysis was to record on  $3 \times 5$  cards statements expressed by patients and personnel either through depth interviews, group interviews, or by written forms. Later, these were itemized according to frequency of occurrence and classified under specific categories such as events related to bedpans, backrubs, sleeping and rest, and so forth. Statements describing events which occurred most frequently were selected to be included in a check-list questionnaire developed for the second phase of the study. As the Commission was primarily interested in nursing items relating to other departments were purposely omitted.

The second phase was carried out several months later, in the same three hospitals. Again a sample of patients was selected, and all nursing and medical personnel were asked to participate. Orientation of staff and patients was similar to the first phase of the study. Patients and personnel were given the check-list questionnaire, which con-

tained actual statements as expressed by patients and personnel. They were asked to read each statement and check those which referred to an event that happened to them and to indicate the period or periods of the day during which the event occurred. This form was filled out once a day by patients and personnel, for a four-day period. After the forms were filled out they were placed in envelopes and sealed so as to insure anonymity and encourage a high rate of response.

The unique aspect of the check-list form is that it is filled out by patients and personnel as the events actually occur. All other questionnaires including the American Hospital Association questionnaire are filled out by patients in retrospect.

In addition, a sample of patients and personnel was asked to rate items on the check-list, using a five-point scale according to the importance of the incident in affecting the rate of patient recovery. This step provided a means of weighting items according to their importance.

The third phase of the study, which is now being conducted in five additional general hospitals, uses a check-list that incorporates the rating scale and is filled out only once.

Administering the questionnaire for one day was found to involve less hospital time and proved to be less tiring to both patients and personnel. This questionnaire asks them to check whether the event occurred today, yesterday, all the time, or never. It is completed by patients and personnel while the patient is still in the hospital.

A workshop directed to assist hospital personnel to interpret the results of their studies is now being planned.

#### FINDINGS

##### *The Open-ended Form vs. Check-list*

The findings presented here pertain to the first and second phases of the study. Since the instrument is still being perfected, this is a progress report only.

A comparison of the open-ended questionnaire of the first phase with the check-list

type of questionnaire of the second phase revealed that patients checked three times as many events on the check-list as entered on the open-ended questionnaire.

Items on both types of questionnaires were ranked according to frequency of occurrence. Items classified under "sleeping and rest" ranked in first place on both questionnaires. Items pertaining to food and to carrying out nursing techniques, maintained a high rank on both forms.

The check-list type of questionnaire helped the patient to recall items which were often overlooked when the open-ended form was used. Patients who were first-day post-operative and acutely ill were often able to complete the check-list questionnaire but not the open-ended form.

A comparison of items was made on the open-ended form with the check-list. Naturally it was easier to check an item than to write it out. The check-list probably suggested some items to respondent which they might not have thought of on the open-ended form.

The analysis of items on both forms showed that the check-list questionnaire was the preferred instrument, both for patients and personnel.

Two-thirds of all the items the patients checked most frequently in all hospitals were positive. The other one-third of the items they checked related to negative aspects of their care. Events which disturbed the patient's well-being the most had to do with drinking water, food, and environmental noises. For example:

"Drinking water wasn't changed often enough."

"Food was cold when served."

"There was too much noise in the hall."

"Other patients made disturbing noises."

Inadequate bath facilities or lack of cleanliness in bathrooms was also checked very frequently by patients.

Items relating specifically to nursing that the patients checked frequently were:

"I was not told anything about my treatments by my nurse."

"Got waked up too early for temperature taking."

"Thermometer left in much too long."

"My nurse wouldn't tell me what my diagnosis was."

Analysis of specific items checked by personnel in all hospitals indicated that the five items most frequently checked were:

"Patient making noise disturbed other patients."

"Visitor sat on patient's bed."

"Patient bothered by too many visitors."

"Patient complained about being awakened too early."

"Intake and output sheets were not completed."

The items personnel checked least frequently were:

"Medication not given properly."

"Medication incorrectly labeled."

"Babies left too long with mothers."

"Patient brought to surgery too soon."

"Patient's bed elevated too soon."

To determine the importance of the items as they contributed to patient welfare, a sample of patients and personnel in the three hospitals was asked to rate the items using a five-point scale ranging from extremely important to not important at all.

As you do not have the form in front of you I realize that it is not possible for you to see how one item relates to another in terms of importance. In brief, however, the items rated by *patients* as being the most important were:

"My call for a nurse was answered very promptly."

"My nurse was especially nice to me."

"Bedpan was brought and taken away very promptly."

"My nurse was very much interested in me."

"Couldn't get anything from nurse for pain."

The items rated by *patients* as having the least importance were:

"My nurse wouldn't let me watch TV when I wanted to."

"I saw too many different nurses."

"Fruit juices or milk were served during visiting hours."

"Temperature was taken during visiting hours."

The items rated by *personnel* as being most important in contributing to patients' welfare were:

"Medication is correctly labeled."

"Patient with communicable disease not properly isolated."

"Could not find medication or equipment needed."

"Post-op or critical patient left unattended too long."

"Side rails left down on bed of patient who needed them up."

The items rated by *personnel* as being the least important were:

"Babies left too long in room with mother."

"Patient's tray was not collected promptly."

"Patient did not have paper bag."

"Patient given cold bedpan."

"Patient complained about being awakened too early."

#### *Progress to Date*

The next step in the study is to prepare a profile for each hospital indicating how it stands in relation to specific areas. Individual hospitals were given weighted scores which were obtained by combining the number of times the item occurred with the rating assigned to it by patients or personnel. These showed that items which occurred infrequently were often given a high rating

by patients or personnel, thus increasing the final score. For example:

"My bed was not changed when needed."

This item occurred infrequently but was given a high rating by patients.

The depth interviews with patients and personnel in the three hospitals revealed that there were decided feelings about the satisfactions and dissatisfactions of the patients and the personnel. Before the analysis was completed, the three hospitals were ranked A, B, and C. The rank A indicated that in this hospital, patients and personnel were very well satisfied.

When the weighted negative responses for personnel were computed and a score assigned to each hospital, Hospital A had the smallest number of negative responses, Hospital B next, and Hospital C had the highest number of negative responses. However, patients ranked the hospitals in the order of B, A, and C. The negative responses by patients in Hospital A were mainly non-nursing items. For example:

"Floors were dirty."

When the weighted positive responses were computed, patients ranked the hospitals in order of A, B, and C, hospital A having the highest number of positive responses, and so on.

This analysis helped to validate the findings from the depth interviews with the responses on the check-list.

As each hospital has a chance to study the results of both patient and personnel responses, it is hoped that specific steps will be taken to increase patients' feeling of well-being and morale of personnel.



## Categorization of Patients According to Nursing Care Needs

By

MAJOR ESTHER CLAUSSEN, ANC, USA\*

THE purpose of my talk today is to describe a practical method for determining the nursing care needs of patients and to discuss its application in an Army hospital. This method was developed at two large Army hospitals under the guidance of the Hospital Methods Improvement Branch, Medical Plans and Operations Division, Office of The Surgeon General. It has been adapted to the particular needs of our hospital and found to be practicable and useful.

Professional nursing is currently debating the question whether the highly publicized nurse shortage is due to numerical deficit, because of expanding hospital facilities and health services, or unsatisfactory utilization because available resources are not strategically placed and efficiently used. Whatever the outcome of the debate—and there is much to be said on both sides—it is of vital importance that nurses in hospitals, whether military or civilian, predicate and develop utilization patterns built on the nursing needs of the individual patient.

Army hospitals have used to advantage many devices and methods in the control and operation of their activities. Results of organizational studies, methods studies, operational analyses, work improvement programs, job classification and description all contribute to the improvement of hospital operations. In the examination of nursing service activities use of such studies is equally advantageous.

Since 1951 the Army Medical Service has been experimenting with and developing a

system for defining the nursing needs of the individual patient and classifying such needs into one of several categories. In various studies these categories have ranged in number from three to nine. The optimum number of categories for our use was found to be three, reflecting nursing needs of patients hospitalized on active wards, and one applicable to patients whose needs for nursing are so limited as to permit the majority of cases to be housed in areas which do not require professional nurse coverage. It has been established to our satisfaction that the factors which influence classification of patients by category are: (1) nursing procedural requirements, (2) physical restriction, (3) instructional needs, and (4) emotional needs. These factors relate directly to the work generated by the patient, the doctor and the head nurse. The individual medical protocol will indicate the degree of observation, number and complexity of medications and treatments as well as the physical restriction which must be imposed. These in turn can be readily translated into nursing workload. The understanding analysis by the head nurse of the patient as a sick person, however, determines the amount and type of psychological support required in addition to the extent to which procedural and instructional requirements may be adapted without loss of therapeutic value.

Classifying patients according to their nursing care needs in addition to defining tangible nursing workload has beneficial corollary effects. Some of these are:

1. Better planning results at the nursing unit level.
2. Nursing activities above or below the capabilities of the staff become evident.
3. Job performance of all levels of the nursing team are consistently analyzed.

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From 1 July 1953 to 30 June 1954, data were accumulated on the categorization of patients at the U. S. Army Hospital, Fort Belvoir, Virginia. Previous systems as modified for our use provided for the four broad categories previously mentioned. These categories are as follows:

*Category A:* Represents patients requiring intensive nursing care. Treatments and medications are numerous and complex, observations detailed and more or less continuous with judgmental implications; instructional needs are great. These patients may be helpless, hypoactive or hyperactive. They may or may not be able to perform acts of self-care.

*Category B:* Represents patients requiring moderate nursing care. Patients may be able to perform some or all acts of self-care, but require several treatments and medications, instructions and observations. They may require bed baths and assistance with feeding.

*Category C:* Represents patients requiring minimal nursing care and supervision. These patients ordinarily perform all acts of self-care but require occasional observation, instruction and/or treatment and medication.

*Category D:* Represents patients no longer in need of correlated medical and nursing care but rather require only supportive care necessary to function in a hospital environment.

Major effort is made at our hospital to retain on active wards only the first three categories of patients. Although a small percentage of military Category D patients are maintained on active wards, it is the

practice whenever feasible to house these patients in barracks type quarters which we call "Clinic Quarters." The Clinic Quarters concept was developed in a special project conducted at this hospital and provides for the housing of patients who meet the following criteria:

The patient must be able to:

1. Go to the dining hall for meals.
2. Dress himself and accomplish all acts of self-care.
3. Make his own bed.
4. Aid in the cleaning of his quarters.
5. Require minimal supervision by non-professional nursing service personnel, and live in Clinic Quarters without detriment to health and eventual recovery.

A recent study was performed in this area to evaluate the amount of care required by these patients. Daily observations as well as activity analyses revealed that the nature of the workload was concerned primarily with *coordination* of appointments to various in and out-patient treatment facilities. All care required can be given by nonprofessional nursing personnel. While it is feasible to state that these personnel need not be nursing personnel, in actual practice, medical officers are loath to transfer Category D patients to these quarters unless personnel with at least minimal training are made available.

Data discussed in this report were collected over two consecutive six-month periods. The average total daily hospital census during the first six months was 453 patients. In categorizing patients on active wards it was found that approximately 8

TABLE 1

Period	Active Wards		Clinic Qtrs		Total	
	No.	Percent	No.	Percent	No.	Percent
July-Dec 1953	338	74.6	115	25.4	453	100
Jan-June 1954	301	71.0	123	29.0	424	100

TABLE 2

Period	Census	Distribution of Categories			
		A	B	C	D
July-Dec 1953	338	8.3	41.6	42.0	8.1
Jan-June 1954	301	10.0	41.0	44.0	5.0

percent required intensive, 42 percent moderate, 42 percent minimal and 8 percent supportive nursing care. These percentages are independent of an average of 115 convalescent patients (approximately 25 percent of the total census) maintained in Clinic Quarters. The number of nursing personnel assigned to nursing service for active wards provided for about one hour of professional nursing care and two hours of nonprofessional nursing care per patient day. Of the total three hours available 30 percent was provided by the professional and 70 percent by the nonprofessional nursing staff.

Table 1 compares the distribution of average hospital census between active wards and clinic quarters during the two six-month periods.

Table 2 compares the distribution of the average hospital census by category on the active wards percentage-wise during the two six-month periods.

Table 3 compares the numbers of hours and percentages of nursing care available per patient day on active wards during the two six-month periods.

During the second six months the average total daily hospital census was 424 patients. An average of 301 patients were hospital-

ized on the active wards and 123 were in Clinic Quarters. Utilization of Clinic Quarters facilities increased from 25 percent to 29 percent of the hospital census. The type patients retained in this area during both six month periods were predominantly orthopedic cases.

In categorizing patients on the active wards during the second six months it was found that 10 percent required intensive, 41 percent moderate, 44 percent minimal and 5 percent supportive nursing care. Based on the number of nursing service personnel assigned about one hour of professional and almost three hours of nonprofessional care were available per patient day. Of this total of almost four hours 25 percent was available from the professional and 75 percent from the nonprofessional nursing staff. Comparative analysis indicates a change in the composition of the nursing team; the same amount of professional nursing time was available but the levels of nonprofessional personnel and amount of care they could provide were varied.

This increase of approximately one hour per patient by nonprofessional personnel during the second six-month period was due

TABLE 3

Periods	Professional		Nonprofessional		Total	
	Hrs	Percent	Hrs	Percent	Hrs	Percent
July-Dec 1953	0.93	30	2.16	70	3.13	100
Jan-June 1954	0.97	24.5	2.98	75.5	3.95	100

TABLE 4

Period	Length of Patient Stay Hospitalized on Active Wards	
	Military	Dependent
July—December 1953	11.8	5.2
Jan—June 1954	12.6	5.4

to the addition of clinical technicians to the nursing staff. Trained in an Army school, the clinical technician who may qualify for licensure as a practical nurse, is a new source of support to the nursing service. This technician has a higher level of training and broader experience than is found among the medical technician group. Nursing service at this hospital provides a higher quality of nursing care since the addition of clinical technicians to the staff in spite of the fact that professional nurse strength has remained practically constant during these two six-month periods.

In evaluating the collected data on categorization it is useful to consider the average length of patient stay in the hospital and turnover rate since these influence, to some extent, the kind of nursing care required. When there is a rapid turnover of patients in the wards, more emphasis must be placed on problems of patient orientation, reassurance and adjustment. If the census is fairly stable, with patients remaining a longer period of time, more emphasis is centered on the dynamics of the rehabilitative process. Review of hospital records during this period show the average length

of patient stay for military personnel hospitalized on the active wards to be about 12 days as opposed to approximately 5 days for dependents during both periods. The age of patients, extremes of which influence requirements for nursing care, ranged from the premature infant to 87 years of age.

Table 4 compares the average length of patient stay in days on the active wards for both military and dependent type patients during the two six-month periods.

Table 5 compares the percentage distribution of categories of military and dependent patients on active wards during the two six-month periods.

Tables 6 and 7 compare the total hours and percentage distribution by professional and nonprofessional nursing personnel assigned for military and dependent type patients on active wards.

Not only was there an appreciable difference in the length of stay between military patients and dependents of military personnel, but there was also a difference in the amount of nursing care provided. Since the dependent wards had the greater number of patients in Category A, which represents the group requiring intensive nursing care, the available hours of care provided in this area were necessarily higher.

During both six-month periods the average number of hours available per patient day for dependents was close to four hours. Within this area the range in nursing hours varied from two for the newborn infant to eight hours of care for the pediatric patient, about 40 percent being provided by

TABLE 5

Period	Categories							
	A		B		C		D	
	Mil	Dep	Mil	Dep	Mil	Dep	Mil	Dep
July—Dec 1953	4	20	29	67	55	13	12	0
Jan—June 1954	6	20	30	62	57	17	7	1

TABLE 6  
MILITARY PATIENTS

Period	Prof		Nonprof		Total	
	Hrs	Percent	Hrs	Percent	Hrs	Percent
July-Dec 1953	0.9	29	2.2	71	3.1	100
Jan-June 1954	0.7	19	3.1	81	3.8	100

professional nurses. Within the military areas the range of available nursing hours varied considerably also. On the medical service available professional time varied from about one hour on the contagion ward to one-third of an hour on the general medical wards; on the surgical service the range varied from one professional nursing hour for each patient on the recovery ward to one-half hour on the general surgical wards.

In estimating the adequacy of the number of hours provided for patient care in Army hospitals, it is necessary to assess the extent to which nursing service is charged with responsibility for activities essentially non-nursing in nature. At our hospital all ward housekeeping activities are performed by personnel assigned to the unit. Certain food service activities are retained in nursing service as are many escort and courier functions. In addition, personnel turnover necessary to meet overseas requirements plus the relatively short draft manpower commitment impose consistently heavy on-the-job training and orientation programs. Such situations are beyond the scope of this paper

but they have a recognizable impact on the ability to maintain continuity of patient care.

Categorization of patients according to their nursing care requirements, though in itself not sufficient to enable nursing administrators to evaluate total workload within their service (since the amount of support provided by departments such as dietary and housekeeping, as well as the physical layout, are important considerations), can play the vital role in establishing staffing patterns and requirements. Categorization of patients does provide a tool for the systematic and continuous control of nursing personnel resources because it measures the degree of demand for patient care in the various hospital areas. Use of such a system can provide the factual data needed for effective utilization of personnel; balancing personnel requirements with current workloads. Thus the vital management functions of planning, direction and control are facilitated.

Further research for the refinement and development of quantitative performance standards which may be applied throughout

TABLE 7  
DEPENDENT PATIENTS

Period	Prof		Nonprof		Total	
	Hrs	Percent	Hrs	Percent	Hrs	Percent
July-Dec 1953	1.7	43	2.2	57	3.9	100
Jan-June 1954	1.6	39	2.6	61	4.2	100

the Army Medical Service in determining total personnel requirements for nursing service is being carried out by the Hospital Management Research Unit at Brooke Army Medical Center. Pending the availability of such standards on an Army-wide basis, it is important for nursing service administrators to be constantly alert to the

heavy responsibility with which they are entrusted. Only through assuming this responsibility and utilizing every tool available in a continuous evaluation of the nursing service, can all nursing personnel and especially professional nurses be utilized in rendering effective nursing care in critical areas.



#### HOLD FAST

"Whatever you may suffer speak the truth. Be worthy of the entire confidence of your associates. Consider what is right as what must be done. It is not necessary that you should keep your property, or even your life, but it is necessary that you should hold fast your integrity."

WILLIAM ELLERY CHANNING

## EDITORIALS

### The Red Cross

WHEN disaster strikes, as surely it does in the lifetime of individuals and communities, it is consoling to know that in America we have organizations which exist for the sole purpose of helping our fellow man. One of these organizations, The American Red Cross, is known to all of us.

Not supported by appropriated funds from Congress, but by individual contributions, the Red Cross has expended millions to help millions. No request is too small, no disaster too large to receive this organization's most careful attention.

March, for some years now, has been the month set aside for showing our appreciation to the American Red Cross for the magnificent job it is doing for our nation. We are asked to contribute to its support this month.

The Red Cross has given freely; let each one of us contribute in the same spirit. Individuals who have benefited should readily give though it be only a small contribution. Others who have not needed the help need to give to enable those who have not been so fortunate to again rise and help themselves. Self-help is the aim of the Red Cross. A helping hand is needed when one is down and out, and asks for a fresh start. The Red Cross has been doing this for years. It is part of the daily job. Such help costs money, but pays big dividends toward good citizenship.

Who can tell when and where disaster may strike? The answer is simple—no one. The Red Cross with its wide-spread organization is ready to act in any disaster or personal emergency. On short notice this organization can throw its machine into high gear.

The American Red Cross belongs to every

American. It exists for our sole benefit. It exists because we need it. Its need has been manifested time after time. Let us hope that we shall never need to call upon the organization for help, but let us also be comforted in knowing that help is waiting if needed. Now is the time to reaffirm our faith in this great American organization—The American Red Cross.

### Military Medicine Index and Reference Service

DURING its sixty-four years of existence the Association of Military Surgeons of the United States published 115 volumes of its official journal. It was first called Transactions (1891), then Proceedings (1894), then Journal (1901), then The Military Surgeon (1907). In January 1955, the journal opened its volume under the new label "Military Medicine."

It is timely to look over the growing set of this American military medical periodical and to point out its great value as a repository of knowledge and a store of facts. The impressive set of 115 volumes is a rich and unique source of information both for the professional medical men in the service of the United States and for the laymen and historians of science in all countries.

Since 1891 The Military Surgeon has been the contemporary witness and a living part of history. It functioned as a natural recorder of military medical experiences gathered in four major wars and in the many regional and international conflicts of the past six decades.

On its more than 70,000 pages The Military Surgeon published many thousands of original articles related to all phases of military medicine:—strategic and tactical prob-

lems of the medical services, organizational and planning questions, medical matériel and equipment, medical research and development, health and sickness of the individual soldier in peace and wartime, administration of small and large medical units at various echelons, problems confronted by the medical officer at the battleline or in the rear zone, at the aidposts or in the hospitals, health affairs of civilians and veterans, etc.

Many are the leading editorials and the useful comments which often reveal the troublesome spots of military service in the days gone by. There is also an abundance of association notes, obituaries and miscellaneous matters which, throughout more than half a century, continued to give true account of the current changes in the various branches of military medical service and in the field of medical sciences. Hundreds of unusual illustrations and rare portraits are scattered in the volumes, enhancing the professional and historical value of the journal.

The authors of the articles, editorials, notes, comments and book reviews are from all services and all component parts of our own Armed Forces, but there are also among them a few foreign representatives of the allied forces. Regular and reserve officers of the Army, Navy and Air Force as well as members of the National Guard and officials of other government services are among the contributors of *The Military Surgeon*.

Turning the leaves of the journal and glancing through the set of 115 volumes awakens one's desire to put this treasure of information to the best possible use in the widest circle. The complete set is, of course, hardly in the possession of any single member of the Association. Indeed, a complete set is rather rare and practically unobtainable. Moreover, a perfect set of *The Military Surgeon* would be esteemed up to \$700 to \$1,000 on the market of second-hand book-dealers.

Then, how can the individual member of the Association benefit from the information which is contained in a full set of the journal when he does not have it in his private library and, owing to the rarity of the volumes,

he could not purchase a set even if he could afford to pay the high price? This is a growing problem which would find its radical solution only in a printed exhaustive general index to the existing 115 volumes of *The Military Surgeon*. How such an index should be best built up by analysis of the contents of the journal and how the publication of such a general index should be financed is not the question at present. (In parenthesis it should be mentioned that a partial list of the contents of vol. 1 to 89 (1891-1941), including some of the outstanding original articles only, had been prepared by the late Major General Edgar E. Hume. It is to be found at the end of the Golden Jubilee book of the Association, published in 1941).

Though the radical solution of the indexing problem has to be postponed to more prosperous times, the information of the full set of *The Military Surgeon* is available for the interested person by another means. There is a reference tool which grew up near the Editor's desk throughout the years as a device useful in answering inquiries; it has been also used by those members of the Association who had known of the existence of this editorial desktool.

This tool is a cumulative index, or rather a double index, on cards alphabetically arranged:—one alphabet contains all original articles by subjects while the other includes the same articles arranged in the alphabet of their authors. The files also have the references to the published obituary notices. The two alphabets together extend over 17,000 references on cards, which is a formidable amount of information for such a special field of knowledge as military medicine.

The card index is now made available to all members of the Association, and to all institutions of the Armed Forces whenever they want to consult it. The references are, of course, restricted to the material published in the volumes of *The Military Surgeon*; yet, since many of the journal's original articles are well documented by bibliographical notes, the card index in the Editorial Office can be also useful in tracing the medico-military publications in other periodicals, though it

is not the primary task of the index to assume the duties of the huge historical bibliographies of medicine. The chief value of the unique card index is that it is the specific single key to the richest source of military medical information.

At this point the publication history of the 115-volume set is outlined to show the range of information in the card index. From 1891 to 1894 the Association's name was "Association of Military Surgeons of the National Guard of the United States"; the present name was adopted in 1895. Thus, the changes in the title of the association's official journal are summed up as follows:

a) Vol. 1 (1891)—vol. 3 (1893): Transactions of the Association. . .

b) Vol. 4 (1894): Proceedings of the Association. . .

c) Vol. 5 (1895)—vol. 9 (1900): Proceedings of the Association of Military Surgeons of the United States. . .

d) Vol. 10 (1901)—vol. 19 (1906): Journal of the Association. . .

e) Vol. 20 (1907)—vol. 115 (1954): The Military Surgeon;

f) Vol. 116 (1955)—Military Medicine.

Thus, with a complete set of this publication and with an up-to-date card index to its contents at its headquarters, the Association is at the service of all members, ready to help them in solving their military medical, bibliographical and historical problems.

AERO MEDICAL MEETING  
HOTEL STATLER  
WASHINGTON, D.C.  
MARCH 21-23

## Around the World

By

CLAUDIUS F. MAYER, M.D.

INDIA is not only a country of chronic hunger,—which since 1951 Pandit

Nehru has been trying to correct by all means, but it is also a market of much adulterated food. As a federation of states, the government decided to have an *All India Pure Food Law* to replace the ineffective local rules of the individual states. The law was passed by the "Lok Sabha" (House of People) last year. It imposes severe punishment by jail and/or fine upon anyone who is found to be an adulterator of food. But it is difficult to enforce the federal law when in the whole India there is but one public health laboratory for the analysis of foodstuffs. Thus, the poor men of the street and the poor students of the schools continue to eat their "ghee" (: butter) with the admixture of "vanaspathi," a hydrogenated oil of peanut.

Many Hindu students are indeed very poor, ill-fed, underfed and sickly. An economic and health survey of 43,000 students in Calcutta was undertaken by the Anthropology and Statistics Department of the University. It revealed that only 43% of the students were able to buy the essential textbooks; 34% had to supplement the purchase by borrowing books; 11% had to depend upon books lent by libraries and fellow students, while 12% were not at all properly provided with tools. Only 53% of them had a diet at subsistence level (at the average cost of 1 rupee a day). About 43% of the students were suffering from some illness. The annual student's fee is about 115 rupees at Calcutta University.

In India, eye diseases rank second to malaria among the ailments affecting the 360 million inhabitants of the country. Trachoma, cataract, various forms of glaucoma, corneal and conjunctival diseases are very common, and the number of blind is very high. Popular associations and leagues had been established for the reduction of blinding eye dis-

eases. One of them, the *Bengal Association for the Prevention of Blindness* will celebrate this month its silver anniversary.

Nehru's country became also conscious of the mental health of its people. According to estimates of the Bhore Committee, about 700,000 mentally sick persons are living in India today. Yet, a few more than 10,000 beds are available for them in the country's hospitals. There is also lack of adequate outpatient facilities. For this reason the opening of the *All-India Institute for Mental Health* at Bangalore, in August, 1954 is of great significance. The new institute is the only one of its kind in the entire Southeast Asia. Another approach to the mental health problems of India is by way of education and publication of short vernacular treatises on the topic. To begin the educational program, "*Maner-baikalya-o-sangati*" (On the treatment of mental diseases), a work in Bengali, was recently issued.

Not so long ago the *Indian Armed Forces Medical Service* has changed its Director-General. The new head of the Service is Lt.-General D. N. Chakravarti, A.M.C., who served in the Sudan, Eritrea, and Egypt during World War II. He is known by his work on heat-stroke. Medical officers anywhere will be interested in the clever tricks of malingerers. A medical officer of the Central Prison in Banaras, India, described his experiences with *Indian prisoners and their methods of feigning sickness* and seeking admission to hospitals. Aside from the common deceptions of producing blood in the sputum, protein in the urine, pus in the urethral discharge, bleeding from the intestines and nose, some tricks are peculiar to India. Signs of scurvy can be manufactured by rough treatment of the gums. Inflammation of the legs or other signs of beriberi can be produced by subcutaneous pushing of a thick needle soaked in lime or other caustics. During a

mumps epidemic, swelling of the parotid region was procured by the sting of a bee put into the mouth.

One of the Hindu medical gazettes recently commented on the *remarkable power of cholera bacteriophage* as witnessed in India. It is common knowledge that the "*khumb*" is a periodical pilgrimage of the faithful to the confluence of the Ganga and Jumna rivers. Bacteriophage against cholera is then derived, according to the medical gazette, from the dirt of the millions of pilgrims who on such occasions dip in the Ganga. The water from the river, the holy "*Ganga jal*," is commonly carried in bottles to the remotest villages of India. Yet, it never putrefies, owing to the antibiotic action of cholera phage.

In one form or another, health insurance or *sickness insurance* is now the topmost medico-social problem of world-wide interest. It has been discussed on many occasions, at local meetings of citizens, national assemblies of doctors, international gatherings of professional persons and government officials. In matters of sickness insurance, universal medical care, together with the so-called reinsurance plan, the position of the Federal Government of the United States has been well explained by Secretary Hobby at the November meeting of the American Medical Association. At that time the health of about 103 million U.S. citizens was covered by some form of health insurance. Yet, there is still a yearly sum of ca. 8 billion dollars,—much of it for drugs, appliances, and routine care—, which in the total medical bill is not covered by insurance, and must be (and is perhaps better) furnished from the family purse. In addition to this gap in the national budget, there are 30 million people in the U.S. who as indigents, or already chronically ill and hospitalized, etc., cannot be reached by the insurance system.

But troubles are likely to grow from such medico-social schemes anywhere. In Bengal, for instance, the *Employees' State Insurance Scheme* (ESIS) was inaugurated last October, on the birthday of Mahatma Gandhi, father of India. The first thing the new sys-

tem caused was that several industrialists have discarded the provisions of the long-established Industrial Health Service and the Factory Medical Service. Now, there is no legal scheme for the protection of the industrial workers of India. In Canada, a Civil Service Health Division had been created in 1945 for the solution of the health and welfare problems of the ca. 140,000 government employees. The Health Division announced that it intended to widen the area of the *Canadian Federal Employee Health Service*, which is now limited mainly to the Ottawa area.

Among the European countries, Ireland has gained some valuable experience with the medico-social provisions of the new Health Act that was promulgated at the end of 1953. The law provided for *free medical service*, maternity and pediatric service, also service for school children in their preventive and curative needs, etc. For the past fiscal year the budget of local health services reached over 12 million pounds, more than twice the expenses for 1947/48. In Sweden also, the *compulsory National Health Insurance Act* began its operations in January 1955. In return for higher taxes it provides free medical service for all, and sickness benefits for those who earn 1200 crowns or more a year. The act is a socialistic measure, estimated to cost over 700 million crowns yearly. The insurance premium, for medical treatment alone, will be 23 crowns a year; dependents of the insured will also enjoy the benefits. About 5 million of the 7 million total population of Sweden are expected to participate in the plan when it will have fully developed.

The Swiss government also seriously contemplates the introduction of *maternity insurance* in an obligatory form, while at the latest International Congress of Gynecology and Obstetrics, held in the summer of 1954 in Geneva, to the consternation and criticism of some of his listeners, an old advocate of *social medicine* made the forecast that "all barriers between preventive and curative medicine, between governmental and private medicine, will break down in the future so

that the entire population will enjoy the benefits of modern scientific medicine" (Sigerist).

This is naturally the extreme form of sickness insurance as now practiced beyond the Iron Curtain where, owing to the lack of fully educated physicians, it had necessarily ended in a caste system of the medical profession, with three cadres of widely divergent education. Even with such factitious increase of the medical profession, the Soviet system broke down in East Germany where the number of medical personnel trained at universities became so small according to the official party bulletin that a medical academy had to be planned in Berlin-Buch for the education of a new type of "people's physicians."

The new Antibiotic Institute in Russia continued its research on the effect of various national brands of antibiotics such as biomylin, ekmolin, albomylin, etc. One of the newest in the series is "microciol" which is recommended for local use in inflammation of the ear, Vincent infection, etc.; it can also be administered by mouth. Another new, penicillin-like antibiotic was also isolated by

Hungarian scholars in Debrecen who obtained it from the microbes living on the wax moth, *Galleria melonella*, and named it *primycin*.

Two months ago this column ended with an Irish example and an advice to retired and idle surgeons-general that they should embark in the clergymen's business. This time the column ends with the advice of a U.S. doctor (S. S. Ross) to retired physicians who wish to do something beside sitting passively in their rocking chair, twiddling their thumbs and watching the world go by from their front porches. The good doctor suggests that retired physicians could and should use their special training for the benefit of themselves and the community in about 20 different activities, for instance—just to list the first three—, 1) acting as librarians in a medical library, 2) acting as owners or directors of medical bookstores, 3) preparing books and articles, etc. Perhaps the next time the good doctor will come up with a supplemental suggestion on what these physicians should do further after they are retired from those positions. . . . *Multa paucis!*



"Anyone who can write is fit for command, but a man who cannot scribble pothooks will never have even so many as a hundred under him. What joy can he take in gold chains and honours when it is the fellow with the reed pen in his hand who gives the orders? Thus it is, and thus it will be—and so, my lad, if you would command men and lead them, learn to write. Then those with gold chains will bow down before you, and slaves will carry you in a chair to the field of battle."

(MIKA WALTARI in *The Egyptian*)

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CLASS ON "PATHOLOGY OF DISEASES OF LABORATORY ANIMALS" HELD AT THE ARMED FORCES INSTITUTE OF PATHOLOGY, DEC. 6-10, 1954

*First row (L-R.),* Lt. Col. Daniel P. Sasmore, USAF (VC); Lt. Col. T. C. Jones, VC, USA (Director of Course); Capt. Wm. M. Silliphant, MC, USN, Deputy Director, AFIP; Brig. Gen. Elbert DeCoursey, Director, AFIP; Col. R. M. Thompson, USAF (MC), Deputy Director, AFIP; Dr. Hugh G. Grady, Chief of Pathology, AFIP; Lt. Col. Fred D. Maurer, VC, USA.

*Second row (L-R.),* C. H. Thompson, DVM; Col. Charles E. Robinson, USAF (VC); Capt. August R. Borgmann (VC) USAR; 1st Lt. C. D. Hughes, USAF (VC); Dr. Ralph D. Barner, DVM.

*Third row (L-R.),* Irwin Jungherr, VMD; Capt. Roger Terry, USAF (MC); 1st Lt. James E. Cook, USAF (VC); Lt. Col. Helmuth Sprinz, MC, USA; Capt. James R. Prine, USAF (VC); Kent Davis, DVM; Maj. Ben D. Fremming, USAF (VC).

*Fourth row (L-R.),* Robert J. Flynn, DVM; Robert T. Haberman, DVM; Douglas M. Gay, MD; Lt. Col. R. K. Nelson, USAF (VC); Lt. Col. M. A. Ross, VC, USA; Wm. J. Hadlow, DVM.

*Fifth row (L-R.),* N. R. Brewer, DVM; Maj. L. D. Jones, VC, USAR; Capt. Geo. P. Blundell, MC, USA; Capt. Jack D. Douglas, USAF (VC); Arch F. Alexander, DVM; Capt. Johnie L. Reeves, USAF (VC).

*Sixth row, (L-R.),* Cmdr. M. D. Williams (MC) USN; Wm. Shalkop, DVM; M. Rachman, DVM; Lt. Col. D. H. Perella, VC, USA; Lt. Col. Bernard Koch, VC, USAR; Robt. Love, MD; M. M. Rabstein, DVM; Capt. R. D. Henthorne, VC, USA.

*Seventh row (L-R.),* D. M. Trotter, DVM; E. S. Feenstra, DVM; J. J. Christian, D.Sc.; 1st Lt. Joseph A. Preston, MC, USA; Capt. J. H. Benson, VC, USA; Maj. M. D. Schneider, VC, USA; N. S. Wolf, DVM; Jules S. Cass, DVM; Frank Johnson, MD; Capt. Don H. Yost, VC, USA; Maj. U. S. Grant Kuhn, 3d, USAF (VC).

*Last row (L-R.),* Lt. Col. H. J. Lindenstruth, VC, USA; Lt. Col. F. C. Votaw, VC, USA; Lt. Col. Earl G. Kingdon, Jr., VC, USA; Lt. Col. Kenneth Burns, VC, USA; Herbert Lansky, MD.

(Not all students were present for picture.)

## SUSTAINING MEMBERS

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## ASSOCIATION NOTES

Timely items of general interest are accepted for these columns. Deadline is 3d of month preceding month of issue.

### Department of Defense

*Ass't Secretary (Health & Medical)*—HON.

FRANK B. BERRY, M.D.

*Deputy Ass't Sec'y*—EDWARD H. CUSHING, M.D.

#### ARMED FORCES DAY

The Department of Defense has announced Saturday, May 21, as Armed Forces Day. Again, as last year, "Power for Peace" will be the slogan of the day.

#### DOCTOR DRAFT BILL

HR 2886, has been introduced in the 84th Congress to extend the present Doctor Draft Law to July 1, 1957.

#### TAX CREDIT FOR RETIRED PERSONNEL

Recently there were two bills introduced in the House of Representatives which would allow retired military personnel under 65 the same credit which retired school teachers, policemen, firemen, and civil servants now enjoy according to the Internal Revenue Code of last year.

#### SELECTIVE SERVICE CALL FOR ARMY DURING MARCH

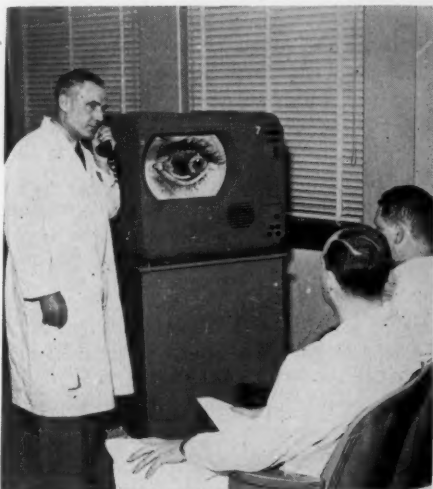
The Department of Defense has requested the Selective Service to provide 11,000 men during March for assignment to the Army.

The Navy, Marine Corps, and Air Force do not intend to place calls with Selective Service during March.

#### TELEVISION

Television is playing a greater and greater part in educational circles.

The National Council for Educational Television, Washington, D.C., reports that



COLOR TELEVISION SCREEN

Col. Chas. Moseley of the Army Med. Serv. Grad. School using telephone during demonstration of eye surgery.

there are now eight stations devoting almost 200 hours weekly to educational television, and this number will probably be tripled this year.

The military services are not lagging behind in the use of this means of education. In January the capabilities and potentialities of color television were explored in a three day symposium held at the Armed Forces Institute of Pathology. The meeting was sponsored by the Television Committee of that Institute, with Colonel Joseph L. Bernier, DC, U. S. Army, as chairman. Communication experts who rendered valu-

able assistance were Dr. A. N. Goldsmith, Dr. P. C. Goldmark, Dr. A. G. Jensen, Major General G. I. Back, and E. W. Allen.

During this symposium an operation was performed in Philadelphia by Major General Isador Ravdin, MC, USAR; pathological specimens were prepared by Dr. Robert Horn. These specimens were viewed in Baltimore and Washington and an opinion rendered by the pathologists attending the symposium.

During this three-day telecast there was a teaching session on the technique of staining microscopic slides. This was put on by the National Naval Medical Center, Bethesda, Maryland, with Commander V. E. Martens, MC, Director of Laboratories, in charge.

During February there was held at the Walter Reed Army Medical Center a Postgraduate Workshop on Military Operating Room Nursing. Color telecasts were made from the operating rooms of the Walter Reed Hospital to the Army Medical Service Graduate School. This is the first time that such color telecasts have been used by the Army in the instruction of nurses.

We are just beginning to enter the field of instruction by television. Who knows—this may be the answer to our school room and teacher problem.

## Army

*Surgeon General*—MAJ. GEN. GEORGE E. ARMSTRONG

*Deputy Surg. Gen.*—MAJ. GEN. SILAS B. HAYS

### PROMOTIONS

Brig. General Isador S. Ravdin, MC, USAR, John Rhea Barton Professor of Surgery, University of Pennsylvania, has been promoted to the grade of Major General, Medical Corps, Reserve.

Colonel James B. Mason, MC, USAR, Administrative Assistant, American College of Surgeons, has been promoted to the grade of Brigadier General, Medical Corps, Reserve.

### COMMITTEE ON ARMY MEDICAL EDUCATION

Brig. Gen. Rawley E. Chambers, MC, Chief of the Professional Division, and Col. Charles L. Leedham, MC, Chief of the Education and Training Division, Office of The Surgeon General, attended a meeting of the National Research Council's Committee on Army Medical Education at the Medical Field Service School, Fort Sam Houston, Texas recently.

The Committee met under the chairmanship of Dr. Dean Clark, Superintendent of the Massachusetts General Hospital. The principal topic of the discussions was the field aspects of the Army's professional training program.

Also attending were Dr. Thomas Bradley, Executive Secretary of the Committee and staff member of the National Academy of Science, and Dr. Philip Owen, Secretary of the Division of Medicine, National Research Council.

Committee members included Dr. Gaylord W. Anderson, Director and Mayo Professor, School of Public Health, University of Minnesota; Dr. Joseph M. Hayman, Dean and Professor of Medicine, Tufts Medical College; Dr. Franklin C. McLean, Professor Emeritus of Physiology, University of Chicago; Dr. Horatio Rogers, Assistant in Surgery, Harvard Medical School; and Dr. Grant Taylor, Dean and Professor of Pediatrics, University of Texas Postgraduate School of Medicine.

### NEW DIVISION

A new division, to be known as the Medical Information and Intelligence Division, has been created in the Office of The Surgeon General. Formerly known as the medical intelligence branch, the new division had been a component of the preventive medicine division.

As a division, it will continue its former functions and will assume the additional duties of supervising the security functions of the Office of The Surgeon General and providing medical information on foreign areas to authorized individuals and agencies.

Chief of the new division is Col. Philip

W. Mallory, MC. Prior to his present assignment, he served with the Joint Brazil-U. S. Military Commission, Brazil. A 1934 graduate of Tulane University School of Medicine, Col. Mallory is a member of the A.M.A., Assn. of Military Surgeons, and an Associate of the American College of Physicians.

Arthur R. Turner, MD, formerly chief of the medical intelligence branch, will be Technical Director of the division. He has been employed in the Office of The Surgeon General since June 1943. He received his MD degree from the University of Michigan in 1927. He is a Diplomat of the American Board of Pediatrics and member of the American Public Health Association, American School Health Association, and Illinois Public Health Association.

Raymond Seltser, MD, who has been designated assistant chief, was appointed to the Office of The Surgeon General as a Medical Officer (Public Health) in August 1953. Prior to that time he served in the Army Medical Corps after having received his MD degree from Boston University School of Medicine in 1947.

#### ARMY DENTAL SURGEONS MEET

Dental surgeons attending the annual conference on operational and administrative matters in the Office of the Surgeon General, February 16-19 were: Brig. Gen. J. M. Epperly, Chief of Dental Activities, Brooke Army Medical Center; Brig. Gen. A. L. Irons, Chief of Dental Activities, Walter Reed Army Medical Center; Brig. Gen. D. B. Ridgely, Chief Dental Service, Letterman Army Hospital; Col. L. G. Meder, Dental Surgeon for the U. S. Army Forces, Europe; Col. C. P. Canby, Dental Surgeon for U. S. Army Forces, Far East; Col. W. T. Williams, Dental Surgeon, 1st Army Area; Col. H. G. Ott, Dental Surgeon, 2nd Army Area; Col. D. S. Beiter, Dental Surgeon, 3rd Army Area; Col. R. G. Miller, Dental Surgeon, 4th Army Area; Col. S. R. Haven, Dental Surgeon, 5th Army Area; Col. K. P. Fulton, Dental Surgeon, 6th Army Area; Col. G. J. Collins, Dental Surgeon, Mil. Dist.

of Wash.; and Col. H. B. Dierdorff, Chief, Dental Service, Fitzsimons Army Hospital.

#### ARMY NURSES CONFERENCE

The annual chief nurses' conference of the Army Nurse Corps was held March 1-4 in Washington. The Chief of the Army Nurse Corps, Colonel Ruby Bryant, opened the conference at which Major General George E. Armstrong, the Surgeon General made the welcoming address.

Panel discussions, presentations of current trends in military administration, and exchange of information as to the problems common to their duties comprised the agenda.

#### TO VISIT EUROPEAN INSTALLATIONS

Col. Ruby F. Bryant, Chief of the Army Nurse Corps, and Lt. Col. Hilda M. Lovett, Chief of the Dietitian Section, Women's Medical Specialist Corps, will leave March 15 by air for official inspections of their respective interests in the Army hospitals in Austria, France and Germany. They expect to return to Washington by the middle of May.

Details of their tour on the continent are being arranged by Lt. Col. Agnes Maley, Chief of Nursing Service, U. S. Army in Europe, and Maj. Katharine E. Manchester, Chief, Food Service Division, 130th Station Hospital in Germany.

#### ASSIGNMENT SURGEON'S OFFICE, SECOND ARMY

Colonel Alfred P. Thom III, MC, has been assigned as Chief of the Operations Division, Medical Section, Second Army. He will supervise all Medical Reserve activities, develop plans for the mobilization of medical units and provide guidance to commanders of Army hospitals and other medical facilities.

#### ASS'T CHIEF, RESEARCH AND DEVELOPMENT DIVISION

Colonel Glenn J. Collins, MC, formerly Chief, Surgical Research Branch, has been appointed Assistant Chief of the Research

and Development Division, Office of the Surgeon General.

#### JOINT PANEL SESSION AT AMSGS

A joint panel session given for students of the advanced preventive medicine course and the advanced veterinary course at the Army Medical Service Graduate School, was held on February 11. Brig. Gen. Elmer W. Young, Chief of the Veterinary Division and Col. T. F. Whayne, Chief of the Preventive Medicine Division of the Surgeon General's Office; and Col. T. C. Bedwell, Jr., Chief of Preventive Medicine, Surgeon General's Office, Air Force, took part in the discussions.

#### DEDICATIONS AT MFSS

At the eighth birthday celebration of the Medical Field Service School held at Fort Sam Houston, Texas on January 14, buildings and classroom facilities were dedicated to the memory of nine Medical Service officers of the Army who made outstanding contributions to the medical care and administration of Army personnel. Those so honored were:

Brig. General Wallace DeWitt, an outstanding hospital administrator, for whom the Headquarters Building was named; Brig. General Frederick H. Blesse, noted for his field medical service activities, for whom Blesse Hall was dedicated.

Colonel Julia C. Stimson, long the superintendent of the Army Nurse Corps, for whom the school library was named.

Major Oscar Burkard, first officer commissioned in the Medical Administrative Corps, for whom the museum was named.

Lt. Colonel Burt Coers, an Army surgeon who died in a Korean prisoner of war camp, for whom a monument was unveiled.

Colonel Howard T. Wickert, former commandant of the Medical Field Service School, for whom a monument was unveiled.

Colonel John L. Schock, a dental surgeon who died as a Japanese prisoner of war, for whom a monument was unveiled.

Colonel Edward B. Vedder, a medical officer in the research field. Certain facilities utilized in training enlisted technicians were named for Colonel Vedder.

Brig. General Raymond A. Kelser, a Veterinary Corps Officer noted for his research in viruses, bacteriology, pathology, and serology. A monument to his memory was unveiled by his wife.

#### PRIORITIES IN CARE OF INJURED

At a recent postgraduate course in Surgery of Acute Trauma held at the Brooke Army Medical Center Lt. Colonel Robert D. Pillsbury, a member of the staff of the Surgical Research Unit, stated that in battle-wounded patients these priorities in treatment should be established: (1) control of hemorrhage, (2) care of wounds of the chest and neck, (3) care of abdominal wounds, (4) care of injury to major peripheral blood vessels, (5) care of head injuries, and (6) attention to injuries to soft tissue.

He stated that shock, of course, must receive prime consideration in all cases.

#### NURSE COMPLETES WORK FOR DOCTOR DEGREE

Major Dorothy V. Elliott, is the first member of the Army Nurse Corps to complete work for the degree of Doctor of Education. The degree will be conferred by Columbia University in June. In addition to her degree in nursing she has a B.S. degree, an M.S. degree, and an M.A. degree.

Besides a collector of degrees she is a collector of antiques, coins and stamps.

Major Elliott is on duty at Brooke Army Medical Center, Fort Sam Houston, Texas.

#### NURSE ADVISOR VISITS MFSS

At a recent visit to the Brooke Army Medical Center, at which she addressed student officers of the Medical Field Service School, Miss Lorentz, Director of the Nursing Service at Michael Reese Hospital in Chicago, stressed the broader concept of the functions of nurses. She said that the nurse today must be a combination of skilled medi-

cal technique, teaching ability, and administrative knowledge. She emphasized, as is being done so much in business circles, the matter of interpersonal relationships.

She remarked about the increasing interest that the general public is taking in the planning and administration of nursing education.

Miss Lorentz is a member of the Department of Defense Advisory Committee on Women in the Service.

#### BRONZE STARS FOR TWO ARMY NURSES

Majors Lily M. Ogden and Evelyn L. Russel have received the Bronze Star award for meritorious service in the Far East during 1953 and 1954. Major Ogden was the Chief Nurse of the Hospital Annex, Tokyo Army Hospital, Japan, and Major Russel was the Chief Nurse of the 47th Mobile Army Surgical Hospital, Korea.

#### AWARDED LEGION OF MERIT

Lt. Colonel Elizabeth T. Hanna, Chief of the Nursing Service, U. S. Army Hospital, Fort Jackson, South Carolina, has been awarded the Legion of Merit for her outstanding services as Chief Nurse of the Eighth Army in Korea from June 13, 1953 to July 27, 1954.

The citation accompanying the medal reads, in part, "Demonstrating aggressive leadership, executive ability and exceptional professional skill, Colonel Hanna directed the Eighth United States Army Nursing Service in the care and comfort of the sick and wounded of the United Nations Forces, contributing greatly to their personal welfare and significantly enhancing the morale of the troops."

#### ACTIVATION OF 23RD MEDICAL BATTALION

Recently the 23rd Division was activated at Fort Kobbe, Canal Zone, and with it was activated the 23rd Medical Battalion (less Ambulance Company), with station at Fort Clayton. The Commanding Officer of the Battalion and the Division Surgeon named was Major Henry F. Fancy, MC.

Colonel George E. Leone, Chief Surgeon,

United States Army Caribbean, with Headquarters at Fort Amador, participated in the activation ceremonies.

Other officers named for the battalion were: Lt. Col. Roland H. Wingo, MSC, Executive Officer; Major Francis O. Chapelle, MSC, Adjutant; Captain Paul P. Dudyk, MSC, Hq. Co.; Lt. Paul J. Street, MSC, Supply Officer; Lt. Robt. E. Davis, MSC, Ass't. Training Platoon Commander; Capt. Raphael Quinones, MC, Commanding Officer Clearing Company; Capt. S. O. Adams, MC, Lt. G. Whittington, MC, and Lt. J. C. Toole, MC, Commanding Officers of the Clearing Platoons.

#### ATOM-POWERED PORTABLE X-RAY

X-rays of wounded soldiers on the battlefield with a newly designed portable x-ray unit powered by radioactive thulium will soon be possible according to Maj. Gen. George E. Armstrong.

The new device is capable of producing an x-ray picture without electricity, water, or a darkroom. The complete unit, which also includes a film holder, weighs only 48 pounds and may be carried on the back of a medical aid man. Extensive tests at the Army Medical Research Laboratory, Ft. Knox, Kentucky, have proved that the 1/4 inch lead plate which contains the radioactive thulium protects the user from accidental radiation exposure. Under normal use, the tiny piece of thulium is expected to be effective for about one year, when it will be returned to the atomic pile for rejuvenation.

The developer is a "self-contained" cassette or film holder in which all pictures are made with radiosensitive paper and pads instead of film. Radiographs that are produced lack the fine detail of standard x-ray films but they are suitable for field and emergency use.

Operation of the machine is so simple that an average individual can be trained to use it in a few hours. It can be set up, a picture taken, and developed for reading within five to ten minutes. Timing of the exposure is done with a wrist watch.

It is anticipated that each unit will cost approximately \$200. Additional tests, however, must be made before the item can be standardized and placed for commercial manufacture.

#### CLOSING OF HOSPITALS

Previous announcements have been made in these columns about the closing of the Army and Navy Hospital, Hot Springs, Arkansas, and the Murphy Hospital at Waltham, Mass. Again we make the announcement with the effective date given as June 30.

The operation of these hospitals has been costly and it is the desire of the Surgeon General of the Army to eliminate this unnecessary expense. Pressure brought to bear previously has prevented this sensible action which again manifests itself in the interests of economy.

#### ARMY PLANS EARLY RELEASE FOR 44,000

Tentative plans of the Army for reducing its size to meet lowered strength ceilings include the early release next May and June of approximately 44,000 inductees nearing the end of their term of service.

Plans call for the early release of inductees completing 23 and 24 months of service, during those months. According to the Army plan, normal 24-months of service for inductees will be resumed after June.

Officers of the Women's Army Corps, the Chaplains Corps, and Army Medical Service, other than Medical Service Corps, will not come under this planned early release program for officers.

#### FOOD STERILIZATION BY GAMMA RAYS

It is known that gamma rays can fully penetrate a carcass of beef or a No. 10 can and destroy the vitality of microorganisms that are usually responsible for food spoilage. The rays also kill food-infesting insects and trichina worms. With this knowledge available, the Quartermaster Corps became interested in the feasibility of sterilization of the Army's food by gamma radiation.

The Atomic Energy Commission will provide radioactivity for this research project

in the form of "spent reactor full assemblies" which, upon emerging from the nuclear reactor, are highly radioactive and require a "cooling period" before their content of fissionable material can be removed.

The "hot stuff" will be transported on loan to Dugway, Utah, where, while passing through the cooling period, its radioactivity will be used for the Quartermaster's five-year food sterilization research project. Thereafter, the borrowed radioactive material will be returned to the AEC.

There have been no indications thus far that the new method of sterilization would produce harmful substances in irradiated food.

#### NEW TRAINING LITERATURE

Recently published training literature is now available: TM 8-273—Professional Manual for Nursing Service, TM 8-525—Instructor's Guide Sanitary Food Service, TB Med 31—Scrub Typhus, TB Med 241—Military Clinical Psychology Technician, TB Med 242—Health Hazards from Propellant Fuels and Oxidizers, DA Pamphlet 8-13—Interpersonal Relationships in the Care and Management of Patients.

### Navy

*Surgeon General*—REAR ADM. BARTHOLOMEW W. HOGAN

*Deputy Sur. Gen.*—REAR ADM. BRUCE E. BRADLEY

#### NEW ASSIGNMENTS

Rear Admiral John Q. Owsley, MC, Assistant Chief for Personnel and Professional Operations, Bureau of Medicine and Surgery since June 1, 1953 has been named to succeed Rear Admiral Bruce E. Bradley as Commanding Officer, Naval Hospital, Oakland, California.

Rear Adm. Irwin L. V. Norman, MC, present Commanding Officer, Naval Hospital, Great Lakes, Illinois has been assigned to succeed Admiral Owsley in the Bureau of Medicine and Surgery.

Captain Edward E. Hogan, MC, USN, has assumed the duties of Director, Physical

Qualifications and Medical Records Division, Bureau of Medicine and Surgery. He relieved Captain Robert A. Bell, MC, USN, who served in that capacity since July 1949.

Prior to reporting to the Bureau in November 1954, Captain Hogan was Staff Medical Officer, Commander Cruisers—Destroyers, Pacific Fleet.

#### HONORARY CONSULTANTS

Rear Admiral Raymond O. Wells, DC, USNR, Brooklyn, New York; Dr. Oswald M. Dresen, Dean, School of Dentistry, Marquette University, Milwaukee, Wisconsin; and Dr. Willard C. Fleming, Dean, College of Dentistry, University of California, San Francisco, California, have been appointed as Honorary Dental Consultants to the Chief of the Dental Division of the Bureau of Medicine and Surgery by the Assistant Secretary of the Navy (Personnel and Reserve Forces).

#### ENSIGN 1995 DENTAL PROGRAM

Current planning indicates that there will be a fewer number of dental officers required in Fiscal Year 1956. It appears that those senior dental students already participating in the ensign dental program will meet the Navy's dental officer requirements. The Navy has temporarily suspended recruiting of civilian applicants for appointments and active duty in the Dental Corps of the Naval Reserve. Procurement of women and priority IV dentists with more than 17 months of prior military service, *for inactive duty*, will continue. With 350 Ensigns 1995, Dental, already commissioned in the 1955 graduating class, procurement of senior dental students has been suspended, except for those who by law are not required to serve on active duty because of prior military service. The ensign program is still open for students in the junior, sophomore, and freshman classes.

#### ADMINISTRATION CONFERENCE

The conference of the administrators of dental technicians schools held at the Naval Dental School, Bethesda, Maryland in December 1954, made a recommendation that Class A school graduates be permitted to go

directly into Class C prosthetic schools without any intervening duty, and that a class be convened in the Class C schools every three months instead of every six months as in the past. This would have a number of advantages: First, Class A graduates, selected by aptitude tests, will go directly into Class C school with study habits formed and motivation high. Second, the Navy will have the advantage of their services for a longer time. Third, by graduating a class every three months, the "feast and famine" periods caused by graduating a class only every six months will be avoided. It is planned to convene the first class of this type in April 1955.

#### EXHIBIT DISPLAY

"The Late Effects of Internally Deposited Radioactive Materials", a Bureau of Medicine and Surgery scientific exhibit, was shown at a meeting of the American Academy of Orthopaedic Surgeons held in the Hotel Statler, Los Angeles, California, January 29-February 3, 1955.

This exhibit presents a summary of the clinical, histopathological, autoradiographic, roentgenographic, and radiochemical findings of four recent investigations of the late effects of internally deposited materials conducted at the Harvard Medical School, the Argonne National Laboratory, the Massachusetts Institute of Technology, the Finsen Institute in Copenhagen, Denmark, the National Naval Medical Center, Bethesda, Maryland, and the Universities of Utah and Rochester.

#### ATOMIC MEDICINE TALK

Rear Admiral Charles F. Behrens, MC, Sixth Naval District Medical Officer, Charleston, S.C. gave a talk on "Atomic Medicine" at the annual meeting of the Widows and Orphans Society in Charleston on January 12.

Admiral Behrens is well known in the field of radiology and atomic medicine. He is the Navy's Councilor to the American College of Radiology. Admiral Behrens represented the Navy at a meeting of the College which was held in Chicago, February 10-12.

## ATTENDS CONFERENCE ON TELEVISION

Captain Robert V. Schultz, MC, USN, Head of the Audio-Visual Training Section, Professional Division, BUMED, attended a conference on the potential use of television in postgraduate medical education sponsored by the Council on Medical Education and Hospitals, American Medical Association, held in Chicago recently.

## FIELD MEDICAL TRAINING COURSE

A two-week course of instruction in Field Medicine will be conducted at the Marine Corps Base, Camp Pendleton, California, commencing March 15, 1955 for Male Naval Reserve Medical personnel.

The course in Field Medicine has been designed to provide specialized training in that field, including practical instruction in medical material logistics, preventive medicine in the field, professional treatment of emergencies, and medical organization with Fleet Marine units. In addition, the trainee will receive practical instruction of a military nature.

## HEADS DEPT'T. OF PSYCHIATRY AND NEUROLOGY

Captain Elmer L. Caveny, MC, USN, who was placed on the Retired List of Officers of the Navy on January 1 has assumed the post of Chairman of the Department of Psychiatry and Neurology at the University of Alabama, Birmingham.

In addition to his specialty of neuropsychiatry Captain Caveny is a Flight Surgeon. He headed the Psychiatric Division of the School of Aviation Medicine, Pensacola, Fla., and later was Head of the Neuropsychiatry Branch, Bureau of Medicine and Surgery.

Captain Caveny is a member of the American Medical Association; the Association of Military Surgeons; the Aero Medical Association; and the American Psychoanalytic Association. He is a Fellow of the American Psychiatric Association and the American College of Physicians; a Diplomate of the American Board of Psychiatry and Neurology; and is certified by the American Board

of Psychiatry and Neurology, and in the Founders Group, Aviation Medicine Section, American Board of Preventive Medicine.

## RETIREMENTS

Captain Isaac B. Polak, Medical Corps, USN; Commander William X. Heelan, MSC, USN; and Lieutenant Commander Flavis A. Wilson, MSC, USN, retired on January 1, 1955.

Captain Isaac B. Polak, received the degree of Doctor of Medicine from Tufts Medical College in 1918. He was commissioned a Lieutenant, junior grade, Medical Corps, Naval Reserve Force, March 16, 1918. He subsequently transferred to the Regular Navy, and was promoted to Captain, MC, USN, in 1942. He commanded Naval Base Hospital No. 8 during World War II. His home address is 2225 Pine Street, San Diego, California.

Commander William X. Heelan, MSC, USN, entered the Naval service as a Hospital Apprentice, Second Class, in 1924, and was promoted through the enlisted Hospital Corps ratings to Lieutenant Commander, MSC, to rank from January 1, 1949. He was placed on the Retired List of Officers of the Navy January 1, 1955 as a Commander by virtue of his World War II combat decorations. Commander Heelan's address is 1264 New Hampshire Avenue, N.W., Washington, D.C.

LCDR Flavis A. Wilson, MC, USN, who was retired on January 1, 1955, entered the Navy as a Hospital Apprentice in 1920, and was subsequently promoted through the Hospital Corps ratings to his present rank on January 1, 1949. His home of record is 551 Thorn Street, Imperial Beach, Calif.

Captain John J. Wells, MC, USN, who was retired on January 1, 1955 gives his address as: California State Hospital, Agnew, California.

## NURSES RETIRED

Commander Helen C. Gavin was placed on the Retired Officers List on January 1. She was a native of Wisconsin and was appointed a Navy Nurse in 1924. Commander Gavin's

home is given as 301 Dayton Avenue, St. Paul, Minn., but she expects to eventually make her home in San Diego, Calif.

Commander Ethel P. Himes, was also placed on the Retired list as of January 1. She is a native of Colorado, and was appointed a Navy Nurse in 1931. She will make her home in North Creek, Beulah, Colorado.

Other retirements, effective Jan. 1, 1955:

CDR Howard T. d'Arc, DC

CDR John W. Metcalfe, MC

CDR Richard J. H. Stanton, DC

LTJG Patricia M. Clark, NC

## Air Force

*Surgeon General*—MAJ. GEN. DAN C. OGLE

*Deputy Surg. Gen.*—MAJ. GEN. W. H. POWELL, JR.

AERO MEDICAL ASSOC. EDITOR

Colonel Robert J. Benford, USAF (MC) has been appointed editor of the official publication of the Aero Medical Association, the *Journal of Aviation Medicine*. He succeeds Dr. Louis H. Bauer, who was first com-

mandant of the Air Force School of Aviation Medicine and founder of the Aero Medical Association.

Colonel Benford is currently holding the position of editor of the *Armed Forces Medical Journal*, being the first Air Force editor. During World War II he was air surgeon of the XX Bomber Command, the first B-29 organization to attack the Japanese mainland. Later as commander of the AAF Aero Medical Center in Heidelberg, Germany, he was responsible for collecting all available scientific and historical information concerning wartime achievement of Luftwaffe flight surgeons.

Colonel Benford is general chairman of the 26th annual meeting of the Aero Medical Association which will be held at the Hotel Statler, Washington, D.C., March 21-23. He held a similar position for the 59th annual convention of the Association of Military Surgeons held in Washington in November 1952. He was presented at that meeting with the Association's Founders Medal.

### REVIEW COURSE IN AEROMEDICAL PROCEDURES

A Review Course in aeromedical procedures has been established at the School of Aviation Medicine, Randolph Air Force Base, Texas.

The course has been designed for flight surgeons who have several years of practice in the field, and for selected medical officers in their preparation for the examination leading to certification in the aviation medicine specialty.

The first class had an enrollment of 22 high ranking medical officers, who pursued the intensive course for its four-week period.

### NON-EFFECTIVENESS

Figures for 1952 show that over one-half (53.2 percent) of all medical non-effectiveness in the Air Force fall into four major diagnostic classes: accidents, poisonings, and violence (15.9 percent); diseases of the respiratory system (13.5 per cent); infective and parasitic diseases (13.2 per cent); and diseases of the digestive system (10.6 percent).



*Air Force Photo*

COLONEL ROBERT J. BENFORD, USAF (MC)

Although the average Air Force military strength increased 22 percent from 1951 to 1952, factors such as age distribution, personnel identity (officer-airmen) proportions, and flying status proportions remained relatively the same. About three-fourths of the individuals in the Air Force are under 30 years of age.

## Public Health Service

*Surgeon General*—LEONARD A. SCHEELE, M.D.

*Deputy Surg. Gen.*—W. PALMER DEERING, M.D.

### 1956 BUDGET FOR HEALTH-MEDICAL PROGRAMS

The Eisenhower budget for fiscal year 1956 includes a little over 2 billion dollars for the Department of Health, Education, and Welfare. Some of the HEW agencies will receive an increase in their funds if their requests would be approved by Congress. Here is a break down of the total requested amount of appropriation for HEW and other health agencies (in millions of dollars):

	In 1955	Request for 1956
Public assistance	1,200	1,400
Food & Drug Administration	6,2	6,6
Office of Vocational Rehabilitation	28,7	42,5
Children's Bureau	30,0	30,0
Public Health Service	251,3	328,6
Veterans Administration		
a) medical care	861,6	880,89
b) hospital construction	50,4	60,00
Atomic Energy Commission	27,00	27,00
Civil Defense Administration	26,00	35,3

Among the agencies of the Public Health Service the largest sums are requested for the Hill-Burton Hospital Programs (125), hospitals and medical care (34, 3), National Cancer Institute (22, 3), mental health activities (17, 5), National Heart Institute (17, 2). There are \$38 million requested for Indian Medical Care, an increase of \$14 million over the current year's budget.

#### NEW FCDA HEALTH DIRECTOR

Appointment of Dr. John M. Whitney as director of Health Services, Federal Civil

Defense Administration, was announced by Val Peterson, Administrator.

He is a commissioned officer in the Regular Corps of the USPHS with rank of Medical Director. A graduate of the University of Mississippi, Dr. Whitney received his medical degree from Tulane University in 1934, and took a post-graduate course in Public Health Administration at Vanderbilt University in 1937.

Before joining FCDA, he served as Health Officer for the City of New Orleans for eight years from 1941, and was Medical Director for the Midwestern area, American National Red Cross, in 1949, and Medical Director of the Red Cross, Eastern area, in 1950.

Dr. Whitney will replace Dr. Robert H. Flinn who has been reassigned by the USPHS to the Office of the Chief, Bureau of States Services, in Washington, D.C.

#### AIR POLLUTION CONSULTANT

Arthur C. Stern, Chief Industrial Hygiene Engineer of the New York State Department of Labor, has been appointed to direct the Public Health Service's research and investigative work into the causes, effects, and means of controlling community air pollution.

His headquarters will be at the new Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio.

#### TUBERCULOUS MENINGITIS STUDY

Dr. Leonard A. Scheele, Surgeon General of the Public Health Service, has announced that nineteen pediatricians throughout the country are cooperating in a study to find out whether isoniazid will prevent the development of tuberculous meningitis in children with first-infection tuberculosis.

The possibility that this drug might be of value in that disease was suggested by Dr. Edith Lincoln of Bellevue Hospital, New York.

#### INCREASE IN INFECTIOUS HEPATITIS

The number of cases of infectious hepatitis, tabulated by the Public Health Service for 1954 was 50 percent greater than 1953.

In 1953 there were 33,363 cases reported against the 49,722 for 1954. The Middle Atlantic Division showed the greatest increase with more than 10,000 cases reported.

#### INCREASE IN POLIOMYELITIS

Acute poliomyelitis cases tabulated by the Public Health Service for the 52 weeks of 1954 numbered 38,734 against 35,953 for 1953. An unusually high incidence of cases occurred in Florida, Alaska, Hawaii, and Puerto Rico. There was a relatively large increase over the 1953 total reported in Massachusetts, Iowa, Nebraska, Kentucky, and Texas.

#### REGULAR CORPS EXAMINATIONS FOR NURSE OFFICERS

Examinations for appointment of nurse officers to the commissioned corps of the U. S. Public Health Service will be given at central points over the country April 26-28. The applicants will be examined at the centers nearest their homes.

Two options are offered: clinical nursing including nursing education, and public health nursing.

Officers have ranks equivalent to Naval officers, and are paid according to the same scale.

Application forms and further information can be obtained from the Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D.C. Applications must be received not later than April 4.

#### LIBRARY SCIENCE TRAINING PROGRAM

Applications for a one-year medical record library science training program will be received until June 1. The course will be given at the Public Health Service Hospital, Baltimore, Maryland. There is no tuition; meals and rooms are furnished. Graduates of the course qualify to take the examination for registration as medical record librarians and may be considered for assignments in the Public Health Service either as Commissioned Officers or Civil Service appointees.

Applicants must have a baccalaureate de-

gree from an accredited college of liberal arts and sciences, the preparation for which includes at least 12 semester hours of biological sciences.

Application forms may be obtained from: Chief, Medical Records Branch, Div. of Hospitals, U. S. Dep't of Health, Education, and Welfare, Washington 25, D.C.

#### SOME FACTS

There are now seven million people receiving monthly social security payments.

For the Fiscal Year 1955 Congress appropriated 21 million dollars as the Federal share of the cost of building additional chronic disease hospitals, nursing homes, outpatient clinics, and medical rehabilitation centers.

The opening of new hospitals under the Hospital Survey and Construction program is bringing retired nurses back to the active practice of their profession.

#### A NEW INSECTICIDE

DDVP—Dimethyl Dichloro Vinyl Phosphate—has been discovered by research scientists at the Savannah, Georgia, laboratory of the Public Health Service's Communicable Disease Center, and is giving very promising results as a new insecticide.

It has a very high potency and attacks flies known to be resistant to DDT. At the same time DDVP is found to be safer for animals than other organic phosphorous insecticides now in use.

## Veterans Administration

*Chief Medical Director*—WILLIAM S. MIDDLETON, M.D.

*Deputy Chief Med. Dir.*—R. A. WOLFORD, M.D.

#### ADMIRAL BOONE RESIGNS

#### DR. MIDDLETON APPOINTED

Vice Admiral Joel T. Boone, U. S. Navy, Retired, who has filled the position of Chief Medical Director of the Veterans Administration since 1950, resigned that position on February 28 for reasons of health. Admiral

Boone has devoted 41 years of his life to public service. He was President of our Association in 1949.

Dr. William S. Middleton, who succeeds Admiral Boone, comes from the position of Dean of the University of Wisconsin Medical School, a position which he has held since 1953, after an association with that University since 1912. He took his new position on March 1.

Dr. Middleton was an attending specialist in tuberculosis to the old Veterans Bureau. He served overseas in the military forces in both World Wars, and has been a member of the National VA Medical Advisory Committee. Dr. Middleton is a member of the Association of Military Surgeons.

#### HOSPITAL MANAGER APPOINTMENTS

Dr. Kelso A. Carroll, assistant chief medical director for planning in the Veterans Administration's Department of Medicine and Surgery has been appointed as hospital manager at the VA Center at Bay Pines, Florida. He succeeds Homer Rogers who retired January 31.

Dr. Carroll has served in various capacities of professional and administrative nature. He was manager of the Aspinwall, Pa., hospital from 1944 to 1946, and of the Hines, Ill., hospital from 1946 to 1953. During World War I he was captain in the Army Medical Corps, and in World War II served in the grade of colonel.

Dr. Samuel J. Muirhead has been named as manager of the neuropsychiatric hospital at Salisbury, North Carolina. He replaces Dr. Louis A. Verdel who retired in December 1954.

Dr. Muirhead joined the Veterans Administration Medical Service in 1941 at the Waco, Texas hospital. He is a World War II veteran and a diplomate of the American Board of Psychiatry and Neurology.

Dr. Joseph C. Tatum, chief of professional services at the Veterans Administration hospital in Tuscaloosa, Alabama, has been appointed manager of the VA hospital at American Lake, Wash. Dr. Tatum served in the Army Medical Corps for five years

during World II, leaving the Army in 1946 as a lieutenant colonel. He is a diplomate of the American Board of Psychiatry and Neurology.

Dr. Thomas J. Hardgrove, who has been manager of the American Lake Hospital has been transferred to the new VA neuropsychiatric hospital in Sepulveda (Los Angeles), California.

#### VETERANS BENEFITS

By a proclamation of President Eisenhower, January 31, 1955 was the end of the period of eligibility for various benefits to which the veterans are now entitled under the Korean GI Bill. That date was the last officially recognized day of the Korean Conflict period. Those entering the service after January 31, 1955 are considered as in the service in peace-time.

Several Veterans Administration administered benefits are affected by this proclamation, and they cannot be claimed by anyone who has not earned his rights by service prior to January 31, 1955. The benefits affected are as follows:

(a) Education and training. This must start within 3 years after release from active service for those who have accrued benefit by service prior to January 31, 1955. The program ends 8 years after discharge, or on January 31, 1963, whichever date is earlier.

(b) Home, farm, or business loans—guaranteed or direct, ends January 31, 1965.

(c) Vocational rehabilitation of war-time disabled—ends 9 years after discharge, or January 31, 1964, whichever date is earlier; additional 4 years in hardship cases.

(d) War-time rate compensation and pension (ends January 31, 1955)

(e) Death compensation—death on or before January 31, 1955, except later deaths in case of extra hazardous service.

(f) Medical, hospital, and domiciliary care—at war-time rate.

(g) Burial benefits.

(h) Automobile for the seriously disabled.

(i) Benefits for inductees—established by Public Law 463, 83rd Congress.

(j) Other benefits not administered by

VA—as, preference in housing purchase insurance; farm loan; job counseling and placement service; unemployment compensation; mustering out pay.

#### CYCLOSERINE

The new antibiotic, cycloserine, will be used in a pilot study by the Veterans Administration to determine its value in the treatment of tuberculosis.

Dr. Israel G. Epstein of the New York Medical College, and Dr. Henry Welch, Chief, Antibiotic Division of the Federal Food and Drug Administration, reported on this new drug at the 14th VA-Army-Navy Conference on the Chemotherapy of Tuberculosis which was held in Atlanta, Ga., February 9.

If found to be effective this will add one more drug to those now in use in the treatment of tuberculosis: streptomycin, PAS, and isoniazid.

## Miscellaneous

#### JUBILEE OF SURGERY, GYNECOLOGY & OBSTETRICS JOURNAL

The 1955 January issue of *Surgery, Gynecology and Obstetrics* has a golden cover to commemorate the fiftieth anniversary of the monthly journal. This issue is marked "Volume 100-Number 1," since the periodical is made up of two volumes a year.

The first pages of the golden jubilee issue are devoted to a historical retrospect; to Dr. Martin, the founder, and his surgical pupils, Besley, Kanaval and Richter, whose indefatigable work, imagination, enthusiasm and cooperation made it possible that the journal, as a unique publishing and printing venture, has endured for fifty years. *Congratulations.*

#### COUNCIL ON DENTAL AFFAIRS

At the end of November 1954 several dental-minded departments and agencies of the federal government formed the Inter-Agency Council on Dental Affairs. The Council is headed by Leo J. Schoeny, dentist member of the Health Resources Advisory

Committee of the office of Defense Mobilization.

The Council attempts to coordinate the activities of the entire federal government relating to the dental profession and dental care. Previously, such efforts have been limited mainly to military and defense matters. The major items of concern to the Council are (a) the more effective use of dentists and auxiliary personnel in the Armed Forces, (b) the training of dental auxiliary personnel, (c) recruitment of dental career officers, and (d) dental research.

The following agencies are at present represented on the Council: the four departments: Defense, Army, Navy, and Air Force; Veterans Administration, U. S. Public Health Service, Selective Service, Bureau of the Budget, Civil Service Commission, and Department of Interior.

#### SURVEY OF FOOD AND DRUG LAWS

On January 17 a committee of fourteen distinguished citizens was named by the Secretary of the Department of Health, Education, and Welfare to evaluate the adequacy of the enforcement of the Federal Pure Food and Drug laws. Congress had set aside \$21,000 for the study.

The first meeting of the new committee was held on February 3 under the chairmanship of Mr. G. Cullen Thomas, Vice-President of General Mills, Inc. The pharmaceutical industry was represented by Mr. Robert A. Hardt, Vice-President of Hoffman-La Roche, Inc.

#### CIVILIAN FUTURE OF ENLISTED MEDICAL TECHNICIANS

Various efforts are in progress for putting a person's military occupational experience to the best civilian use after his release from the services. Former surveys showed, however, that enlisted personnel in the Navy Hospital Corps were reluctant to continue in civilian nursing or other health services because their military experience gave them no professional recognition or advanced standing.

There are now more than 15,000 enlisted personnel serving in the Armed Forces medical facilities. It would be in the Nation's interest if they continued their skillful work in their civilian life.

A special Subcommittee on Professional Services wanted to learn more about the future plans of the military medical technicians, and started an inquiry into their problem. The National League for Nursing is also greatly interested.

The study is expected to result in an improvement of the salaries of civilian medical technicians, and in addition to grant credit points for military technical experience toward a certificate or diploma in nursing.

#### STATEMENT OF POLICY

The Tobacco Industry Research Committee has recently issued a small pamphlet covering the Policy concerning grants for research. It is stated that "The Committee desires to have scientists work with the greatest freedom and without domination of any kind. It will make no attempt to direct the administration of the project once started, to influence its course or to control its results other than to be assured that the funds are properly expended for the purposes of the grant and that all findings are reported in accordance with the best scientific practice."

All communications should be addressed to: The Executive Secretary, 5320 Empire State Building, New York 1, N.Y.

#### ROTODYNE HELICOPTER

A new British helicopter capable of carrying 50 passengers or 11,000 pound payload is scheduled to fly this year. It is designed to cruise at 150 mph and to have a maximum speed of 200 mph. It has a scoop net for lifting instead of the usual method of securing a strap or sling around the waist when used in rescue work.

#### FILMS ON AMERICANISM

To further training in citizenship and its responsibilities, which is sorely needed in this country, the National Education Pro-

gram, Searcy, Arkansas, has released the first three films of a series of thirteen, known as "American Adventure."

Dr. George S. Benson, president of Harding College and founder-director of the National Education Program has given his personal attention to the development of these films which have for their basic setting the lecture classroom of the Freedom Forum Workshop.

#### RECEIVES PASTEUR AWARD

Professor of bacteriology Perry W. Wilson, University of Wisconsin, has been chosen to receive this year's Pasteur Award, as announced by the Society of Illinois Bacteriologists.

The award is given to the scientist of Illinois or adjacent states for a notable contribution to the science of bacteriology. The award this year was made for Professor Wilson's research in the field of nitrogen fixation.

During World War II he served as special consultant to the armed services in the field of biological warfare. He has been a member of the National Research Council, and at present is editor of "Bacteriological Reviews."

#### MEDICAL PARASITOLOGY COURSE

A short intensive course on the laboratory diagnosis and pathology of parasitic infections will be presented August 15-27 at the Louisiana State University School of Medicine, New Orleans.

For further information address: Dr. Clyde Swartzwelder, Dept. of Microbiology, Louisiana State University School of Medicine, 1542 Tulane Ave., New Orleans 12, La.

#### SUMMER SCHOOL OF ALCOHOL STUDIES

The thirteenth annual session of the Summer School of Alcohol Studies will be held from June 27-July 22 by Yale University, New Haven, Conn. The school is open to professional workers presently active in the prevention or treatment of alcoholism, e.g., clergy, educators, physicians, case workers, and psychologists.

PROCTOLOGY ACADEMY MEETING

The International Academy of Proctology will meet at the Hotel Plaza, New York, March 23, 25, and 26; the meeting on the 24th will be held at the Jersey City Medical Center.

An invitation to all physicians is extended to attend these sessions. The American Academy of General Practice will grant credits to its members attending the meeting.

AAGP MEETING

The American Academy of General Practice will hold its Seventh Annual Meeting in Los Angeles, March 28-31 at the Shrine Auditorium. Registration fee for non-members will be \$5.00 except for residents, interns and medical students, who upon presentation of credentials, will have the registration fee paid for by the Academy.

AMERICAN GOITER ASSOC. MEETING

The American Goiter Association will hold a meeting at the Skirvin Hotel, Oklahoma City, Oklahoma, April 28-30. The program will consist of papers and discussions dealing with the physiology and diseases of the thyroid gland. The Secretary is: Dr. John C. McClintock, 149½ Washington Ave., Albany, N.Y.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The Twelfth Annual Meeting of the American Medical Writers' Association will be held at Hotel Jefferson, St. Louis, Mo., Sept. 30-Oct. 1, 1955, according to the announcement made by Dr. Harold Swanberg, Secretary, 209 W.C.U. Bldg., Quincy, Ill.

Three universities are now offering 4-year collegiate courses in medical journalism and writing: the Universities of Missouri, Illinois and Oklahoma.

MANUALS AVAILABLE

Two pocket-size manuals are available from the American College of Surgeons, at the price of \$1 each: *Early Care of Acute Soft Tissue Injuries*, and *An Outline of the Treatment of Fractures*. Address: 40 East Erie Street, Chicago 11, Illinois.

A NEW MANUAL FOR NURSES

"Operating Table Usage," a 62-page, well illustrated booklet is available on request to the American Sterilizer Company, Erie, Pa. It was planned for the education of assistants on the surgical team. This manual makes a nice addition to any surgical nurse's library.

WORLD HEALTH ORGANIZATION PUBLICATIONS

Syphilis, Vol. 10, No. 4	\$1.50
Rabies, Vol. 10, No. 5 (1954)	1.50
Rabies, Laboratory Techniques No. 23	3.00
Yellow Fever in Africa, Vol. 8, No. 12	.25
Administration of Nursing Services, No. 91	.25
Available from: Columbia University Press, International Documents Service, 2960 Broadway, New York 27, N.Y.	

GOVERNMENT PUBLICATIONS

"Leyte-Return to Philippines"	\$6.75
Physiological Effects of Wounds No. D 104.11:SU 7/v.1	3.50
Industrial Health & Med. Programs No. FS 2.2:IN 27/3	1.00
Gamma Globulin in Proph. of Polio No. FS 2.62:20	1.25
Hospital Service, Dietary Dept., Plans & Equipment, No. FS 2.62:20	.15
Above may be obtained from the Supt. of Documents, Govt. Printing Office, Washington 25, D.C.	

"PRESCRIPTION FOR MEDICAL PARTNERSHIPS"

"Prescription for Medical Partnerships," a general information booklet on the business details of establishing and continuing a group medical practice, has been prepared by Dr. Charles Maertz, retired Medical Director of The Union Central Life Insurance Company.

A copy can be obtained by writing to "Medical Partnerships," Field Service Division, P.O. Box 179, Cincinnati 1, Ohio.

NEW FOOLPROOF AUTOCLAVE TAPE

A new tape for sealing autoclave bundles and automatically showing whether or not the bundle has been autoclaved is now available through hospital supply house channels.

The tape is designed for use in short strips for sealing the bundles, thus eliminating pins and other ordinary means of securing the bundles. After autoclaving diagonal stripes appear on the tape to show that the bundle has been through the autoclave.

It is explained that this does not replace the ordinary indicator which changes at high temperatures to show sterility of the bundle

contents. The purpose of the tape is to expedite the preparation of bundles for the autoclave, and while providing a secure method for fastening the bundles, also allows a rapid, easy manner of opening the bundles. There is no adhesive residue left on the surface of the object to which the tape is attached.



COLONEL ARTHUR L. STREETER, USAF (MC)  
President, New York Chapter, Association of Military Surgeons of the U.S.

## New York Chapter

The new president of the New York Chapter, Colonel Streeter, is Command Surgeon, Continental Air Command, Mitchell Air Force Base, L.I., N.Y.

In subsequent issues of this journal it is planned to present the other officers of the New York Chapter.

## Honor Roll

The following sent in one or more applications for membership in the Association during the month of January, 1955:

Bernard Abel, M.D.  
Geraldo Barroso, M.D.  
W. Compere Basom, M.D.  
Lt. Charles R. Brantingham  
Quentin A. Guccione, D.D.S.  
Col. S. Rush Haven, DC, U. S. Army  
Major A. E. A. Hudson, MSC, AUS  
Capt. Anna L. O'Hagan, A.N.C.  
Col. Thomas G. Prempas, MC, USAR



## OBITUARIES

### Lieut. Colonel Louis H. Hanson, U.S. Army Retired

Louis Hedven Hanson, Lieut. Colonel, U. S. Army, retired, died in the U. S. Naval Hospital, St. Albans, N.Y., on October 5, 1954, at the age of 77 years.

Colonel Hanson was born in 1877. He received his medical degree from the George Washington University School of Medicine, Washington, D.C., in 1904. In 1906 he entered the regular Army. During General Pershing's Punitive Expedition into Mexico in 1916 Colonel Hanson, then a captain, commanded an ambulance train. During World War I he commanded the base hospital at Camp Bowie, Fort Worth, Texas. He retired from service on August 31, 1929. Since that time he lived at Shrewsbury, N.J.

### Col. Carroll P. Price, U.S. Army, Ret.

Carroll P. Price, Colonel, U. S. Army, retired, died at the Haggin Memorial Hospital, Harrodsburg, Kentucky, on December 12, 1954, at the age of 74 years, after a prolonged illness.

Colonel Price was a graduate of the University of Cincinnati Medical School. He practised medicine with his father at Harrodsburg prior to entering the Army. He served during both World Wars, and, upon retiring for physical disability in 1944 returned to Harrodsburg where he resumed the practice of medicine.

He is survived by his widow, two daughters, three sons, and ten grandchildren.

Interment was at Spring Hill Cemetery, Harrodsburg.

### Dr. Charles M. Griffith, Vet. Adm., Ret.

Charles Marion Griffith, M.D., former Director of the Medical Services of the Veterans Administration, and President of the Association of Military Surgeons of the United States (1935-1936), died at Mount Alto Veterans Administration Hospital, Washington, D.C., on December 19. Death was due to a heart ailment.

Doctor Griffith was born in Jasper, Tennessee in 1882. He received his medical degree from the University of Tennessee Medical School in 1908. During World War I he was with the Army's 28th Division, and participated in the campaigns at Verdun, Meuse-Argonne, Veile River and Metz. After his service in World War I he entered the Public Health Service, and in 1924 transferred to the Veterans Administration, becoming its medical director in 1931. He served in that capacity until 1945, when he became manager of the Mount Alto Veterans Administration Hospital. He retired in 1951 having served in the latter position for six years.

He is survived by his widow, who lives at 10210 Sutherland Road, Silver Spring, Md., a son, and two daughters.

Interment was in Arlington National Cemetery.

### Capt. Alva A. Shadday, U.S. Navy, Ret.

Alva Adrian Shadday, Captain, U. S. Navy, retired, died in Summerville, South Carolina, December 22, 1954. Captain Shadday was born at Vevay, Indiana in 1891. Shortly after receiving his medical degree

from the University of Louisville Medical College in 1917 Captain Shadday was called to active duty as a Naval Reserve Force medical officer. He was transferred to the Regular Navy in 1920. On January 1, 1947, he was placed on the Retired List of Officers of the Navy.

During World War II Captain Shadday served in the Pacific area. He was authorized to wear the Navy Unit Commendation which was awarded to the *President Adams*, on which he served.

Interment was at Arlington National Cemetery.

### Cdr. Marvin M. McLean, U.S. Navy

Marvin McDugald McLean, Commander, U. S. Navy, active, died December 31, 1954 at the U. S. Naval Hospital, Bethesda, Maryland.

Commander McLean was a native of Washington, D.C. He received his medical degree from Johns Hopkins University in 1927, after which he practised medicine in Washington, D.C. He served in the Navy during World War II and was transferred to the Regular Navy in 1947.

Interment was in Arlington National Cemetery.

### Ens. Marietta H. Pierson, U.S. Navy, Ret.

Marietta Harris Pierson, Ensign, Nurse Corps, U. S. Navy, retired, died on October 27, 1954 at Miami, Florida.

Ensign Pierson was born in Pataskala, Ohio, November 24, 1868 and was the second oldest Navy Nurse Corps officer on the Retired List of Officers. She served in the Army Nurse Corps from March 1918 to March 1921; was appointed a Reserve Navy Nurse in 1921 and a Nurse, U. S. Navy, in 1932. She was retired from active service November 1, 1933.

### Maj. Adolphe M. Giffin, U.S. Army, Ret.

Adolphe Mauger Giffin, Major, U. S. Army, retired, died on January 6 at MacDill Air Force Base, Florida.

Major Giffin was a native of New York. In 1898 he left his medical studies to serve with the Army, where he saw active service in the Philippines and in China during the Boxer Rebellion. In 1901 he returned to medical school and was graduated from the University of Maryland School of Medicine. He was commissioned as a medical officer in the Army in 1909. He retired for physical disability in 1933.

### Como. Richard A. Warner, U.S. Navy, Ret.

Richard Ambrose Warner, Commodore, U. S. Navy, retired, died January 6 at the U. S. Naval Hospital, Bethesda, Maryland at the age of 76 years.

Commodore Warner was born July 4, 1878 in Washington, D.C., son of John and Katherine Theresa (Keating) Warner. He received his medical education at Georgetown University from which he graduated in 1901. He was appointed a lieutenant, junior grade, in the Navy in 1905; was placed on the Retired Officer list in August 1942, but continued on active duty until 1947.

During his 42 years of service Commodore Warner served in a number of positions on ships and hospitals on land. At one time he had served with the American legation in Peking, China, and again with the naval mission to Brazil. He won a citation from the Navy for his heroic work during the Knickerbocker Theater disaster in Washington, D.C. in 1922. During World War II he was awarded the Commendation Ribbon with pendant. He was a Fellow of the American College of Surgeons (1917).

He is survived by his widow, Mrs. Mary R. Warner, who lives at 3716-49th St., N.W., Washington, D.C.

Interment was at Arlington National Cemetery.

## Rear Adm. Wm. J. Agnew, U.S. Navy, Ret.

William John Clarke Agnew, Rear Admiral, U. S. Navy, retired, died January 25 at the Naval Hospital, San Diego, California. Admiral Agnew was born December 6, 1891 at High Falls, New York. He received his medical degree from the University of Vermont School of Medicine in 1914.

In February 1917 he was appointed assist surgeon in the Medical Corps Reserve, and later entered the Regular Navy. He was promoted to the grade of Rear Admiral in 1942. He served as deputy chief of the Bureau of Medicine and Surgery during World War II. He was awarded the Legion of Merit for service as director of personnel of the bureau.

Admiral Agnew was the author of the Handbook of the Hospital Corps in 1939. He was former commanding officer of the National Naval Medical Center, Bethesda, Maryland. He was a Fellow of the American

College of Surgeons, and a former member of the Association of Military Surgeons.

Admiral Agnew is survived by his widow, who resides at Coronado, California.

Interment was at Arlington National Cemetery.

## Med. Dir. Franklin J. Halpin, USPHS, Ret.

Franklin J. Halpin, Medical Director, United States Public Health Service, Retired, died December 6, 1954 at the age of 62 of coronary occlusion.

Doctor Halpin was born in Chicago, June 17, 1892. He received his medical degree from the University of Loyola School of Medicine in 1918. He became a specialist in Preventive Medicine and was certified by the American Board of Preventive Medicine. He served with the Public Health Service, the Veterans Administration, and became director of the Bureau of Employees Compensation. Dr. Halpin was a member of the American Medical Association, the American Public Health Association, and the Association of Military Surgeons of the United States.

## BOOK REVIEWS

PROGRESS IN NEUROLOGY AND PSYCHIATRY. An Annual Review—Vol. IX. Edited by E. A. Spiegel, M.D., Professor and Head of the Department of Experimental Neurology, Temple University School of Medicine, Philadelphia, Pa. 632 Pages. Grune & Stratton, New York. 1954. Price \$10.00.

It is impossible for a reviewer to condense this book because the book itself is a condensation of more than 3700 papers which were published between December 1952 and December 1953. The editor has reviewed the literature of the basic sciences as well as that of the clinical fields of neurology, neurosurgery and psychiatry. The papers reviewed include those presented before three international congresses (Neurology—Lisbon; Electroencephalography—Boston; Physiology—Montreal).

The first 106 pages of the book are devoted to the basic sciences. These include neuro-anatomy, general neurophysiology, regional physiology of the central nervous system, neuropathology and pharmacology of the central nervous system. The next 212 pages are devoted to neurology but included in this section are chapters on the autonomic nervous system and neuro-endocrine relationships which cover subjects more often dealt with by psychosomatic medicine and psychiatry than by neurology. The bibliography following the chapter of the autonomic nervous system contains 356 references. Many of these references have to do with the clinical application of information discovered by investigators in the basic sciences. All of this is thought to indicate a trend toward a closer union of the basic sciences, neurology, psychosomatic medicine and psychiatry. The overlapping of the subjects included in the sections on neurology and neurosurgery are also indicative of the close relationship that

exists between the neurologist and the neurosurgeon.

The section on neurosurgery (a total of only 70 pages) includes chapters on peripheral nerve surgery, surgery of the spinal cord and column, cerebral trauma and traumatic infection of the central nervous system, brain tumors, vascular system and psychosurgery. For the most part these pages are devoted to improvements in methods and techniques, and to evaluations of results of relatively new procedures.

The section on psychiatry (229 pages) is the longest section and has the greatest number of chapters. Included is a chapter on psychology which is a five-year review since this subject has not been reviewed regularly in this annual during recent years. Also included under psychiatry are chapters on clinical psychiatry, mental hygiene, forensic psychiatry, criminal psychopathology, child psychiatry, the neuroses, alcoholism, psychosomatic medicine, psychoanalysis, clinical psychology, group psychotherapy, physiodynamic therapy (shock therapy), psychiatric nursing and occupational therapy and rehabilitation. The numerous subdivisions of the section on psychiatry reflect the multiplicity of the approaches to the problems of psychiatric illness and perhaps is also indicative of the lack of unity between the several subdisciplines in psychiatry.

Dr. Spiegel, his editorial board and contributors are to be congratulated on the completion of the tremendous job of preparing this volume. The comprehensive bibliographies make this volume an invaluable aid to all those engaged in training, teaching, or research in neurology, neurosurgery, psychiatry and the associated sciences and disciplines.

COL. WM. E. WILKINSON, MC, USA

## BOOKS RECEIVED

Books received are acknowledged in this department, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interest of our readers and as space permits.

- A Ciba Foundation Symposium on the Kidney*, Little, Brown & Co. Boston, Mass. Price \$6.75.
- Surgery of the Caecum and Colon*, by Stanley Aylett, M.B.E., M.B., B.S., B.Sc., F.R.C.S., The Williams & Wilkin Co., Baltimore, Md. Price \$9.00.
- Les Plaquettes Sanguines de l'Homme*, by Bernard Maupin. Masson et Cie, Paris, France.
- Transfusion Sanguine et Actualités Hématologiques*, Mason et Cie, Paris, France.
- Diagnostic Laboratory Hematology*, by George E. Cartwright, M.D. Grune & Stratton, Inc., New York, N.Y. Price \$3.00.
- The Ciba Collection of Medical Illustrations, Vol. 2 Reproductive System*, prepared by Frank H. Netter, M.D. Ciba Pharmaceutical Products, Inc., Summit, N.J. Price \$13.00.
- Psychosurgery and the Self*, by Mary F. Robinson, Ph.D. and Walter Freeman, M.D. Grune & Stratton, Inc., New York, N.Y. Price \$3.00.
- Handbook of Treatment*, by Harold T. Hyman. J. B. Lippincott Co., Philadelphia 5, Pa. Price \$8.00.
- Transactions of the American College of Cardiology, Vol. III*. American College of Cardiology, New York 19, N.Y.
- Cardiac Anomalies*, by Vincent Moragues, M.D. and Chester P. Lynxwiler, M.D., The Williams & Wilkins Co., Baltimore, Md. Price \$6.50.
- Hernia*, by Chester B. McVay, M.D., Charles C Thomas, Publisher, Springfield, Ill. Price \$4.75.
- Ciba Foundation Symposium on Hypertension*, Little, Brown & Co., Boston, Mass. Price \$6.50.
- Medical Treatment of Mental Disease*, by D. J. McCarthy, M.D. and K. M. Corrin, M.D. J. B. Lippincott Co., Philadelphia, Pa. Price \$12.
- Surgical Nursing*, by Eliason, Ferguson, and Sholtis. J. B. Lippincott Co., Philadelphia, Pa. Price \$4.75.
- Regional Enteritis*, by Frederick F. Boyce, M.D., J. B. Lippincott Co., Philadelphia, Pa. Price \$2.35.
- Essentials of Medicine*, by Charles P. Emerson, Jr., M.D. and Jane S. Bragdon, R.N. J. B. Lippincott Co., Philadelphia, Pa. Price \$4.75.
- Operative Orthopedic Clinics*, by Lewis Cozen, M.D., Alvia Brockway, M.D., in collaboration with Paul E. McMaster, M.D. J. B. Lippincott Co., Philadelphia and Montreal. Price \$10.00.
- Drugs in Current Use, 1955*, by Walter Modell, M.D. Springer Publishing Co. Inc., New York, N.Y. Price \$2.00.
- Peripheral Nerve Injuries*, Medical Research Council, editor H. J. Seddon. Her Majesty's Stationery Office, London, 1954.
- Malaria Control*. Bulletin WHO, Vol. 11, No. 4-5, 1954. Columbia University Press, New York 27, N.Y. Price \$3.00.
- Correlative Neurosurgery*, Edgar A. Kahn, Robert C. Bassett, Richard G. Schneider, and Elizabeth C. Crosby. Charles C Thomas, Publisher. Springfield, Ill. Price \$19.50.
- Personal Affairs Record Book*, Military Service Publishing Co., Harrisburg, Pa. Price \$1.00.
- Clinical Neurosurgery, Vol. 1*, Congress of Neurological Surgeons, The Williams & Wilkins Co., Baltimore, Md. Price \$8.00.
- Health Supervision of Young Children*, by Nina Ridenous, Ph.D. American Public Health Association, 1790 Broadway, New York, N.Y. Price \$2.00.

Any of the above books may be ordered through the Association of Military Surgeons. Check book desired, and return this page

## The Sir Henry Wellcome Medal and Prize

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### COMPETITION FOR 1955

THE competition is open to all medical department officers, former such officers, of the Army, Navy, Air Force, Public Health Service, Veterans Administration, The National Guard and the Reserves of the United States, commissioned officers of foreign military services, and all members of the Association, except that no person shall be eligible for a second award of this medal and prize and no paper previously published will be accepted.

*The award for 1955, a medal, a scroll, and a cash prize of \$500, will be given for the paper selected by a committee composed of the Association's vice-presidents which reports on the most useful original investigation in the field of military medicine. The widest latitude is given this competition, so that it may be open to all components of the membership of the Association. Appropriate subjects may be found in the theory and practice of medicine, dentistry, veterinary medicine, nursing and sanitation. The material presented may be the result of laboratory work or of field experience. Certain weight will be given to the amount and quality of the original work involved, but relative value to military medicine as a whole will be the determining factor.*

Each competitor must furnish six copies of his paper which must not be signed with the true name of the author, but are to be identified by a *nom de plume* or distinctive device. These must be forwarded to the Secretary of the Association of Military Surgeons of the United States, Suite 718, 1726 Eye St. N.W., Washington 6, D.C., so as to arrive at a date not later than 1 August 1955, and must be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and enclosing his true name, title and address. The length of the essays is fixed between a maximum of 10,000 words and a minimum of 3000 words. After the winning paper has been selected the envelope accompanying the winning essay or report will be opened by the Secretary of the Association and the name of the successful contestant announced by him. The winning essay or report becomes the property of the Association, and will be published in MILITARY MEDICINE. Should the Board of Award see fit to designate any paper for "first honorable mention" the Executive Council may award the writer life membership in The Association of Military Surgeons, and his essay will then also become the property of the Association.

